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First records of Pauropoda (Millotauropodidae; Pauropodidae) from Gabon with the description of 16 new species (Pauropoda and Symphyla of the Geneva Museum XIV)

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First records of Pauropoda (Millotauropodidae; Pauropodidae) from Gabon with description of 16 new species (Pauropoda and Symphyla of the Geneva Museum XIV). - Two collections of Pauropoda (Myriapoda) from Gabon were studied. Twenty-three species were identified, 16 of them are new to science and are described here: *Allopauropus gabonicus* sp. n., *A. akonesis* sp. n., *A. barrai* sp. n., *A. ipassaensis* sp. n., *A. singesensis* sp. n., *A. cleofanus* sp. n., *A. cylindricus* sp. n., *A. suppeditatus* sp. n., *A. isodacintrai* sp. n., *A. stenygros* sp. n., *A. phakoides* sp. n., *A. bovistellus* sp. n., *A. lambdoides* sp. n., *Cauvetauropus pistillifer* sp. n., *Hemipauropus elongatus* sp. n., *H. bilobatus* sp. n. A key to the species of the subgenus *Perissopauropus* in *Allopauropus* is presented. Most species found in tropical West Africa have not been collected elsewhere, indicating a high degree of endemism. Species occurring outside West Africa more often have ranges including the islands of the Indian Ocean and/or south Asia rather than North or South Africa. The wide range element is poor in species.

Keywords: Myriapoda - taxonomy - soil fauna - Africa - biogeography.

INTRODUCTION

The Pauropoda of tropical West Africa have been studied by Remy, several papers in 1948-1962, and by Scheller, papers in 1975 and 1995. Their studies were based on material from Senegal, Gambia, Guinea, Sierra Leone, the Ivory Coast, Cameroon, Congo, and Angola but even if many species have been reported, the taxonomic and distributional knowledge of the West African pauropods is still very incomplete. One gap is partly filled by this study of the first collections from Gabon.

Prof. P. A. Remy (†) was one of the participants of the C.N.R.S. expedition to Gabon in 1962. Unfortunately he died right in the midst of the collection work there, but he and his colleagues, Dr G. Bernardi (†), Paris, Prof. B. Condé (†), Nancy, and Prof. P. P. Grassé (†), Paris, had the opportunity to collect in the Ogooué-Ivindo District in north-eastern Gabon, particularly in the neighbourhood of the Biological Station of Makokou. Their material has been studied here together with material collected by Dr J. A. Barra, Strasbourg, who studied the soil fauna SW of Makokou, of the Plateau Forestier d'Ipassa and of the Île aux Singes in the Ivindo River, 10 km

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downstream Makokou. The two collections, 342 specimens in all, included 23 species. Sixteen species are new to science are described below.

The material, preserved in alcohol, is deposited in the collections of the Department of Arthropods and Entomology I, Natural History Museum of Geneva.

ABBREVIATIONS AND MEASUREMENTS

Abbreviations: ad. ..., subad. ... and juv. ... = an adult, a subadult or a juvenile specimen with the number of pairs of legs indicated.

Measurements: length of the body in mm and range of variation in adult paratypes given in brackets. Indication of absolute lengths are always applicated with μm. Otherwise the text refer to relative lengths.

In the section Systematics the names of the collectors are given by surname only.

SYSTEMATICS

Order HEXAMEROCERATA

MILLOTAUROPODIDAE

Genus ***Millotauropus*** Remy, 1950

1. ***Millotauropus angustiramosus*** Remy Figs 1-3

Millotauropus angustiramosus Remy, 1955a: 117-118, figs 1-5.

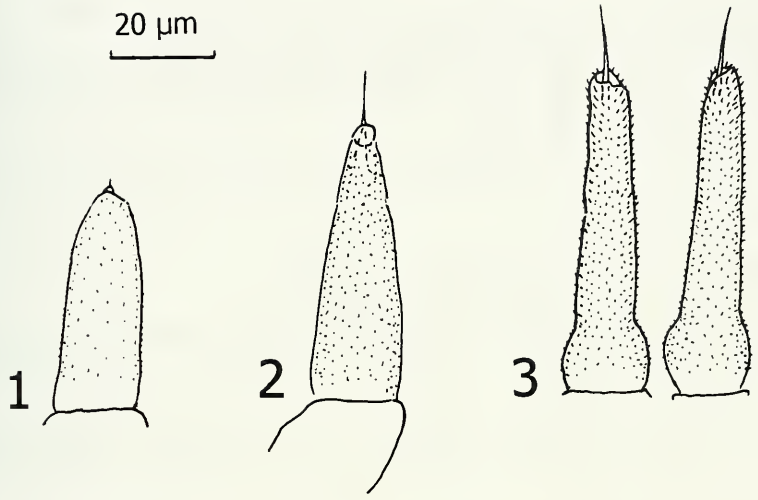
Material examined. Plateau Forestier d'Ipassa, primary forest, soil, 1 ad.(♂), 1 subad. 10(♀), 7.VI.1966 (loc. IPA5/E7); ibidem, 1 juv. 8(sex?), 11.VI.1966 (loc. IPA6/Cl 9); ibidem, at base of plant, 1 ad.(♀), 2 subad. 9(♂), 1 subad. 8(♀), 27.VI.1966 (loc. IPA9/AN2); ibidem, at base of fern, 1 subad.10(♂), 27.VI.1966 (loc. IPA9/AN3); ibidem, at base of fern, 1 subad. 9(♀), 27.VI.1966 (loc. IPA9/AN4); ibidem, at base of fern, 1 ad.(♀), 27.VI.1966 (loc. IPA9/AN5) (all leg. Barra). – Mbeza, secondary forest, near trail at old plantation, 1 ad.(♀), 20.II.1962 (loc. 5, leg. Condé). – Mayiga, left side of road to Booué, at trail near stream, 1 subad. 10(♂), 22.II.1962 (loc. 7, leg. Condé). – Makokou, dell with source, near the water intake, 1 subad. 8(♀), 18.VII.1962 (loc. 48, leg. Condé).

Total number. 13 specimens.

General distribution. The species is known from Angola only and was described by Remy (1955a) from the Lunda District. Later two more Angolan specimens were reported from two other districts, Cuanza-Norte and Cabinda (Scheller, 1975).

Taxonomic remarks. Remy had 3 subad. 10 specimens only when he erected the species and therefore his description is unusually brief. Though the specimens reported above are not in the best condition, it has been possible to emend the description in the following respects.

Antennae. Chaetotaxy of segments 4-6: 7+*p* / 6+*R* / *p*+*p'*+*p"*+*R'*+*f*. Distal part of flagella tapering, pointed. Their relative lengths (base segments included): *F* = 100, *F'* = 256(-259). Antennal branch *R* on 5th segment cylindrical, 1.4 times as long as wide, its flagellum *F* 3.0 times longer than *R*. Distal branch *R'* subcylindrical, 1.3 times as long as its greatest diameter. Relative lengths of setae of segment 6 (*F* = 100): *p* = (196-)200(-207), *p'* = (75-)78(-81), *p"* = (45-)47(-50). Forked organ *f* as long as basal



FIGS 1-3
Millotauropus angustiramosus Remy, genital papillae. 1, subad. 9, right, anterior view; 2. subad 10, right, lateral view; 3, ad. 11, anterior view.

segment of *F'* and with 3 distally furcate end-branches. Antennal branches almost glabrous, but *R'*, basal segment of *F'* and basal part of *p* with short but distinct oblique pubescence.

Genital papillae (Figs 1-3). Base with convex sides, papilla straight, subcylindrical, somewhat tapering, 3.9 times as long its greatest diameter; seta 0.4 of the length of organ; pubescence usually very short, most distally distinct, dense, oblique. Seta on coxa of leg 2 as other coxal setae of anterior legs.

Papillae in subad. 10 conical, with convex sides, 3.3 times as long as their greatest diameter; seta 0.3 of the length of organ, in subad. 9 subcylindrical, distal part strongly tapering and with a very short distal seta; pubescence minute, dense.

Pygidium. Remy (1955a) said that the *st* were very thin and according to his fig. 1 they were glabrous too. In the material from Gabon, and in the Angolan specimens studied by me, they are proportionately shorter and with a few hairs. A few characters of the pygidial sternum are deviating too. The setae b_1 in the Gabon specimens are tapering, not subcylindrical, and they are longer than their interdistance, not 0.8 of that length. Moreover are the branches of the anal plate tapering in the distal half, not cylindrical. The latter character was found also in the Angolan specimens.

Order TETRAMEROCERATA

PAUROPODIDAE

Genus ***Allopauropus*** Silvestri, 1902
Subgenus ***Allopauropus*** s. str.

2. ***Allopauropus (A.) bicornis*** Remy
Allopauropus bicornis Remy, 1948a: 568-569, fig. 1.

Material examined. Plateau Forestier d'Ipassa, primary forest, litter, 1ad. 9(♀) 23.VI.1966 (loc. IPA8/IVI5, leg. Barra). – Mbeza, secondary forest, near trail at old plantation, 1 juv. 6, 20.II.1962 (loc. 5, leg. Condé).
Total number. 2 specimens.

General distribution. Known from tropical Africa only: Kenya (Remy, 1948a) and Angola (Scheller, 1975).

3. ***Allopauropus (A.) dundoensis*** Remy
Allopauropus dundoensis Remy, 1955a: 121-122, fig. 3.

Material examined. Mbeza, secondary forest, near trail at old plantation, 1 subad. 8(♀), 20.II.1962 (loc. 5, leg. Condé).
Total number. 1 specimen.

General distribution. *A. (A.) dundoensis* has been collected on both sides of the Atlantic, in Amazonia (Scheller, 1994, 1997) and in Angola (Remy, 1955a; Scheller, 1975).

4. ***Allopauropus (A.) sphaeruliger*** Remy
Allopauropus sphaeruliger Remy, 1948b: 116-117, fig. 1.

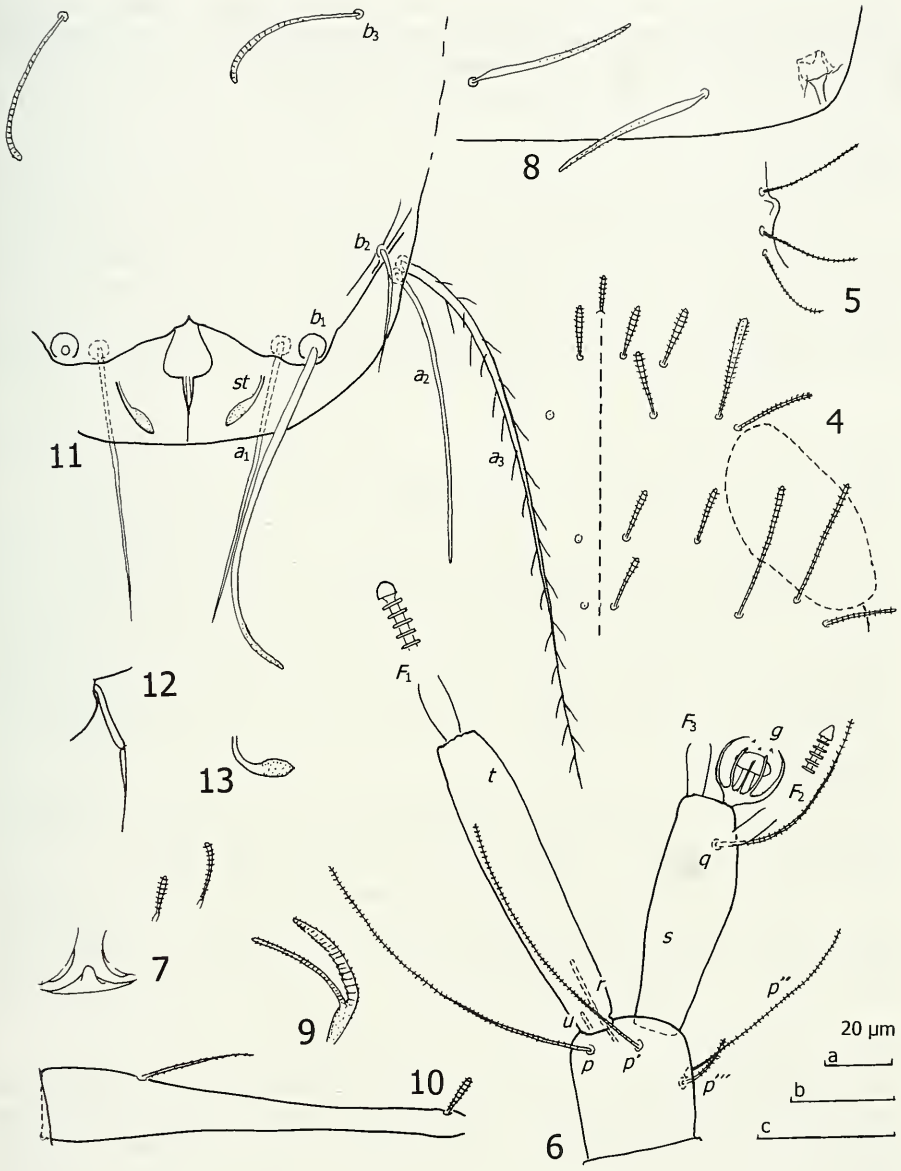
Material examined. Plateau Forestier d'Ipassa, primary forest, under piece of wood, 1 ad. 9(♀), 11.VI.1966 (loc. IPA6/Cl5, leg. Barra); ibidem, soil, 1 juv. 3, 23.VI.1966 (loc. IPA8/AVCT3, leg. Barra).
Total number. 2 specimens.

General distribution. *A. (A.) sphaeruliger* is widely distributed in tropical Africa and has been collected in south and east Asia as well. Previous African records are from Gambia (Remy, 1958a), the Ivory Coast (Remy, 1948b, 1952a, 1953), Angola (Scheller, 1975), Madagascar (Remy, 1956b; Remy & Rollet, 1960), Réunion (Remy, 1956b), Mauritius (Remy, 1959b).

5. ***Allopauropus (A.) gabonicus*** sp. n. Figs 4-13

Type material. **Holotype**: ad. 9(♀), GABON, Plateau Forestier d'Ipassa, primary forest, soil, 20.V.1966 (loc. I PA3/4, leg. Barra).
Other material. Plateau Forestier d'Ipassa, primary forest, soil, 1 juv. 6 (moulting), 7.VI.1966 (loc. IPA5/E8); ibidem, 1 juv. 3, 23.VI.1966 (loc. IPA8/AMC2); ibidem, at base of plant, 1 juv. 3, 27.VI.1966 (loc. IPA9/AN4, leg. Barra).
Total number. 4 specimens.

Diagnosis. The new species is close to *Allopauropus (A.) aculeatus* Remy and *A. (A.) stilifer* Remy, from Congo (Remy, 1954) and Angola (Remy, 1955a), respectively. These three species together form a homogenous group characterized by great similarities in the shape of the anal plate and in the general chaetotaxy of the pygidial tergum. The anal plate is narrowest anteriorly, linguiform and with a single stiletto-shaped appendage, and the setae of the pygidial tergum are of very similar shape and length. *A. gabonicus* sp. n. is distinguished from both *A. aculeatus* and *A. stilifer* in the pubescence of the pygidial setae a_3 (strong sparse hairs in *A. gabonicus* sp. n., very short or glabrous in *A. aculeatus* and *A. stilifer*) and the shape of the sternal antennal branch (subcylindrical with indistinct anterior truncation in *A.* -



FIGS 4-13

Allopauropus (A.) gabonicus sp. n., holotype, ad. 9(♀). 4, head, median and right part, tergal view; 5, lateral group of setae and posterior margin of right temporal organ; 6, left antenna, tergal view; 7, collum segment, median and left part, sternal view; 8, tergite VI, posterior part; 9, seta on trochanter of leg 9; 10, tarsus of leg 9; 11, pygidium, median and left part, sternal view; 12, anal plate, lateral view; 13, stylus, lateral view. Scale a: Figs 4-5, 7-8, 10; b: Figs 9, 11; c: Figs 6, 12-13.

gabonicus sp. n., truncated posteriorly too in *A. stilifer* and proportionately short and wide in *A. aculeatus*). Moreover is the antennal globulus different (large spherical in *A. gabonicus* sp. n., very small in *A. aculeatus* and longish in *A. stilifer*).

Etymology. A latinized adjective of the name Gabon.

DESCRIPTION

Length. 1.02 mm.

Head (Figs 4, 5). Tergal setae blunt, striate, median ones rather long, clavate; some lateral ones long, (sub)cylindrical. Relative lengths of setae, 1st row: $a_1 = 10$, $a_2 = 11$; 2nd row: $a_1 = 13$, $a_2 = 20$, $a_3 = 17$; 3rd row: $a_1 = 10$, $a_2 = 11$; 4th row: $a_1 = 11$, $a_2 = 27$, $a_3 = 25$, $a_4 = 15$; lateral group: $l_1 = 21$, $l_2 = 20$, $l_3 = 15$. Ratio $a_1/a_1 - a_1$ is in 1st, 3rd and 4th rows 1.1, in 2nd row 0.6. No posterior aperture in temporal organs. Other parts of these organs not studied. Head cuticle glabrous.

Antennae (Fig. 6). Segment 4 with 6 setae, these cylindrical, distally tapering, striate. Relative lengths of setae: $p = 100$, $p' = 84$, $p'' = 62$, $p''' = 18$, $r = 32$, $u = 12$. Tergal seta p 1.1 times as long as tergal branch t. The latter somewhat fusiform, 5.1 times as long as its greatest diameter and 1.3 times as long as sternal branch s, the latter 2.9 times as long as its greatest diameter and with its anterodistal corner somewhat truncate. Seta q somewhat thinner than p'', cylindrical, blunt, striate, 0.8 of the length of s. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100$, $bs_1 = 8$; $F_2 = 42$, $bs_2 = 7$; $F_3 = 73$, $bs_3 = 8$. F_2 thinnest. F_1 2.5 times as long as t, F_2 and F_3 1.6 and 2.5 times as long as s respectively. Distal calyces of F_1 and F_3 hemispherical, those of F_2 smaller and conical. Globulus g 1.1 times as long as wide; 8-9 bracts of unequal lengths; width of g 1.1 times as wide as greatest diameter of t. Antennae glabrous.

Trunk. Setae of collum segment (Fig. 7) simple, subcylindrical, blunt, striate, sublateral ones 1.7 times as long as submedian ones; sternite process low, blunt, glabrous; appendages short, subhemispherical with flattened caps, glabrous.

Setae on anterior tergites as submedian setae on head; on posterior tergites longer, most posteriorly tapering and shortly pubescent. 4+4 setae on tergite I, 6+6 on II-IV, 6+4 on V and 4+2 on VI. Posterior setae on tergite VI (Fig. 8) 0.7 of their interdistance and 0.9 of the length of pygidial setae a_1.

Bothriotricha. Relative lengths: $T_1 = 100$, $T_2 = 98$, $T_3 = ?$, $T_4 = 136$, $T_5 = 216$. All with very thin axes, those of T_3 thickest; pubescence minute.

Legs. Setae on coxa and trochanter (Fig. 9) of leg 9 furcate, branches curved, subequal in length; primary one thickest, tapering, pointed, striate, secondary one cylindrical, blunt, indistinctly striate. Corresponding setae on more anterior legs not studied.

Tarsus of leg 9 (Fig. 10) tapering, 5.4 times as long as its greatest diameter, very slender, distal part subcylindrical. Proximal seta tapering, pointed, with very short oblique pubescence, 1/4 of the length of tarsus, 2.5 times as long as distal seta, the latter somewhat clavate, striate. Cuticle of tarsus almost glabrous.

Pygidium (Fig. 11). *Tergum*. Posterior margin rounded. Relative lengths of setae: $a_1 = 100$, $a_2 = 104$, $a_3 = 202$, $st = 23$. a_1 and a_2 tapering, glabrous, the former straight, pointed, converging, the latter curved inwards and diverging. a_3 and st

(Fig. 13) curved inwards, the former tapering, pointed, diverging and with sparse, oblique, long pubescence, the latter clavate, converging, almost glabrous. Distance $a_1 - a_1$ 0.6 of the length of a_1, distance $a_1 - a_2$ 4.3 times as long as distance $a_2 - a_3$; distance *st* – *st* 2.3 times as long as *st* and 0.8 of distance $a_1 - a_1$.

Sternum. Posterior margin between b_1 with broadly V-shaped indentation. Relative lengths of setae (a_1 = 100): b_1 = 131, b_2 = 45, b_3 = 64. b_1 and b_3 subcylindrical, the former with very faint pubescence most distally, the latter somewhat striate; b_2 tapering, pointed, glabrous. $b_1$1.4 times as long as their interdistance; b_2 about as long as distance b_1 - b_2; b_3 0.5 of distance $b_3 - b_3$.

Anal plate (Fig. 12) directed downwards, about as broad as long, narrowest anteriorly, lateral margins almost straight, posterolateral corners rounded and posterior margin straight; stiletto-shaped appendage, as long as the plate, protruding backwards from middle of posterior margin.

6. ***Allopauropus (A.) akonesis*** sp. n. Figs 14-22

Type material. **Holotype**: ad. 9(♀), Gabon, 11 km W Makokou, at road to Booué, forest near Ntsibelong, 19.II.1962 (loc. 4, leg. Condé). **Paratypes**: same data as for holotype, 7 ad. 9(♀), 3 subad. 8(♀), 1 juv. 6.

Other material. Same data as for holotype, 2 juv. 5, 11 km W Makokou, at road to Booué, forest near Ntsibelong, right bank of the Ivindo River, 2 ad. 9(♀), 19.II.1962 (loc. 3B, leg. Condé). – Mayiga, Endoumé, old plantation near the village, soil, 6 ad. 9(♀), 2 subad. 8(♀), 3 juv. 6, 1 juv. 5, 1 juv. 3, 21.II.1962 (loc. 7, leg. Condé); ibidem, forest near the village, 1 ad. 9(♀), 1 juv. 6, 1 juv. 5, 21.II.1962 (loc. 7, leg. Condé & Remy); Mayiga, forest near road to Booué, at trail, 2 subad. 8(♀), 22.II.1962 (loc. 8, leg. Condé & Remy). – Loualouah, right bank of the Ivindo River, 1 ad. 9(♀), 1 subad. 8(♀), 8.III.1962 (loc. 3bis, leg. Grassé); ibidem, right bank of the Ivindo River, under piece of wood, 4 ad. 9(♀), 1 juv. 6, 1 juv. 5, 1 juv. 3, 10.III.1962 (loc. 3, leg. Grassé); ibidem, 1 ad. 9(♀), under piece of wood, 8-10.III.1962 (loc. 23, leg. Condé & Remy). – Edoungavion, 1 ad. 9(♀), 19.II.1962 (loc. 4, leg. Condé & Remy) and 2 ad. 9(♀), 2.III.1962 (loc. 15bis, leg. Condé); ibidem, at beginning of trail to Alarmintang, near stream, under piece of wood, 1 ad. 9(♀), 2.III.1962 (loc. 15, leg. Condé). – Belinga, at trail along the drinking-water pipe, under piece of wood, 2 ad. 9(♀), 2 subad. 8(♀), 1 juv. 5, 16.III 1962 (loc. 33bis, leg. Condé); Belinga, 1 ad. 9(♀), 3 subad. 8(♀), 4 juv. 6, 4 juv. 5, 17.III.1962 (loc. 35, leg. Condé & Bernardi); Belinga, under small stone, 1 ad. 9(♀), 1 juv. 6, 22.VII.1 962 (loc. 55, leg. Condé). – Mvadhi, end of trail to Dubost forest, under stones in laterite, 2 subad. 8(♀), 9.IX.1962 (loc. 101, leg. Condé); ibidem, miners crossroad, under stones, 2 ad. 9(♀), 24.IX.1962 (loc. 107, leg. Condé).

Total number. 69 specimens.

Diagnosis. The new species is close to *Allopauropus (A.) stilifer* and *A. (A.) aculeatus*, the former described from Angola (Remy, 1955a) and the latter from Belgian Congo (Remy, 1954) later also reported from Angola (Remy, 1955a). Together with the preceding species, *A. (A.) gabonicus* sp. n., these three species form a homogenous group characterised by great similarities in the shape of the anal plate and in the general chaetotaxy of the pygidial tergum. The anal plate is narrowest anteriorly, linguiform and with a single stiletto-shaped posterior appendage, and the setae of the pygidial tergum are of similar shape and length. *A. (A.) akonesis* sp. n. is distinguished from *A. (A.) stilifer* by the shape of the sternal antennal branch [only anterodistal corner truncated in *A. (A.) akonesis* sp. n., both anterior corners truncated in *A. (A.) stilifer*], the *st* [straight and distinctly fusiform in *A. (A.) akonensis* sp. n., thinner, curved inwards and clavate in *A. (A.) stilifer*], the shape of the posterior margin of the pygi-

dial sternum [median indentation deep with steep lateral margins in *A. (A.) akonesis* sp. n., shallow and with rounded inner margins in *A. (A.) stilifer*]. There are dissimilarities in the shape of the anal plate too [appendage with two small knobs at its base and appendage itself probably perforated and with convex margins in *A. (A.) akonesis* sp. n., straight margin and neither knobs nor perforation in *A. (A.) stilifer*]. Many characters separate *A. (A.) akonesis* sp. n. from *A. (A.) aculeatus*, e.g. the shape of the tergal antennal branch [very slender, 6.0-6.5 times as long as its greatest diameter in *A. (A.) akonesis* sp. n., 3 times as long as its greatest diameter in *A. (A.) aculeatus* Remy], the globulus *g* [distinct conical stalk in *A. (A.) akonesis* sp. n., short-stalked in *A. (A.) aculeatus*]. Moreover, the appendage of the anal plate is at least as long as the plate in *A. (A.) akonesis* sp. n., about 0.3 of the length of the plate in *A. (A.) aculeatus*) and the b_3 are proportionately much longer in *A. (A.) akonesis* sp. n. than in *A. (A.) aculeatus*.

Etymology. From Greek akonesis = forming a sharpening (referring to the pointed appendage of the anal plate).

Description

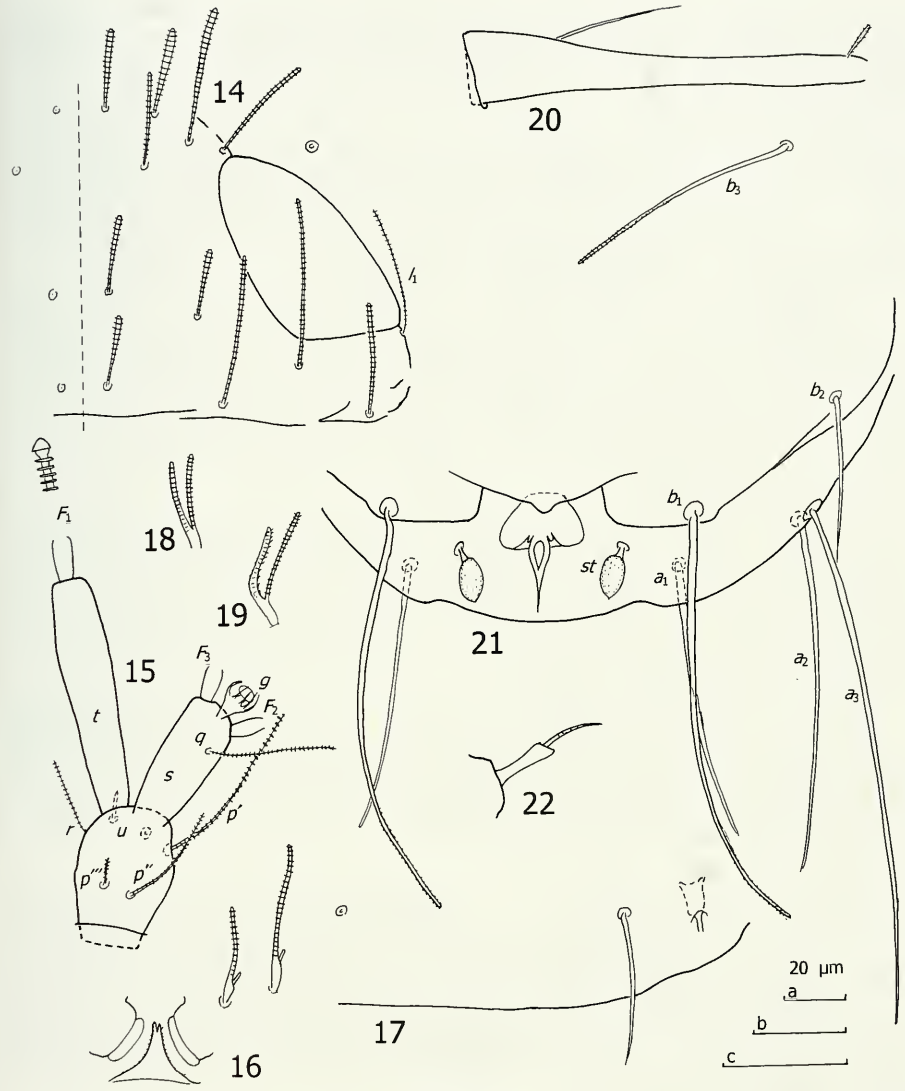
Length. (1.20-)1.39(-1.52) mm.

Head (Fig. 14). Tergal setae blunt, striate, median ones rather long, somewhat clavate; some lateral ones long, (sub)cylindrical. Relative lengths of setae, 1st row: a_1 = 10, a_2 =12; 2nd row: a_1 = 12, a_2 = (16-)18, a_3 = 15(-16); 3rd row: a_1 = 9, a_2 = 9(-10); 4th row: a_1 = 9(-10), a_2 = 19(-21), a_3 = (19-)22, a_4 = 14(-15); lateral group: l_1 = 18(-19), l_2 = 15(-18), l_3 = 22(-24). The ratio $a_1/a_1 - a_1$ is in 1st row (1.4-)1.5, 2nd row 0.7, 3rd row (1.1-)1.3 and 4th row 1.5. Length of temporal organs (0.7-)0.8 of their shortest interdistance; neither pistil nor posterior aperture present. Head cuticle glabrous.

Antennae (Fig. 15). Segment 4 with 6 thin, cylindrical, distally tapering, striate setae. Relative lengths of setae: p = 100, p' = 84(-88), p'' = (47-)48(-52), p''' = 10(-15), r = (31-)32(-33), u = (10-)12. Tergal seta p as long as tergal branch t. The latter somewhat fusiform, 6.0(-6.5) times as long as its greatest diameter and (1.3-)1.5 times as long as sternal branch s, the latter (2.3-)2.4(-2.7) times as long as its greatest diameter and with truncate anterodistal corner. Seta q somewhat thinner than p'', cylindrical, blunt, striate, (0.7-)0.8 of the length of s. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 5; F_2 = 33(-47), bs_2 = 4; F_3 = 73(-88), bs_3 = 5(-6). Flagella similar in thickness; F_1 (3.1-)3.5 times as long as t, F_2 and F_3 (1.7-)1.8(-2.3) and (3.6-)3.8(-3.9) times as long as s respectively. Distal calyces conical, with rounded tip. Globulus g (1.3-)1.4 times as long as wide; ≈ 10 thin bracts present; width of g (1.3-)1.4 times as long as wide and 0.9 of greatest diameter of t. Antennae glabrous.

Trunk. Setae of collum segment (Fig. 16) furcate, subcylindrical, somewhat tapering, striate, secondary branch rudimentary, blunt, glabrous. Sublateral setae 1.5 (-1.6) times as long as submedian ones; sternite process with broad base, anterior part narrow, incised distally; appendages short, wide, with flattened caps. Process and appendages with faint pubescence.

Setae on anterior tergites as submedian setae on head; on posterior tergites longer, most posteriorly tapering and almost glabrous. 4+4 setae on tergite I, 6+6 on



FIGS 14-22

Allopauropus (A.) akonesis sp. n., holotype, ad. 9(♀). 14, head, median and right part, tergal view; 15, right antenna, sternal view; 16, collum segment, median and left part, sternal view; 17, tergite VI, right posteromedian part; 18, setae on coxa of leg 9; 19, seta on trochanter of leg 9; 20, tarsus of leg 9; 21, pygidium, median and left part, sternal view; 22, anal plate, lateral view. Scale a: Figs 16-20; b: Figs 14-15; c: Figs 21-22.

II-IV, 6+4 on V and 4+2 on VI. Posterior setae on tergite VI (Fig. 17) (0.5-)0.7 of their interdistance and 1.1(-1.2) times as long as pygidial setae a_1.

Bothriotricha. Relative lengths: $T_1 = 100$, $T_2 = (98\text{-})104$, $T_3 = (106\text{-})112(\text{-}114)$, $T_4 = ?(123)$, $T_5 = ?(189\text{-}198)$. All possessing very thin axes with short oblique pubescence.

Legs. Setae on coxa (Fig. 18) and trochanter (Fig. 19) of leg 9 furcate, branches similar, cylindrical, blunt, striate, subequal in length on coxa, secondary branch longest on trochanter. Corresponding setae on more anterior legs with rudimentary secondary branches.

Tarsus of leg 9 (Fig. 20) tapering, (5.6-)5.9(-6.3) times as long as its greatest diameter, in middle and distal parts very slender, distal 2/3 subcylindrical. Proximal seta tapering, pointed, with very short oblique pubescence, (0.3-)0.4 of the length of tarsus, (3.3-)3.6 times as long as distal seta, the latter is somewhat clavate, with short oblique pubescence. Cuticle of tarsus almost glabrous.

Pygidium (Fig. 21). *Tergum*. Posterior margin rounded but with shallow indentations outside *st*. Relative lengths of setae: $a_1 = 100$, $a_2 = (119\text{-})128$, $a_3 = (204\text{-})255$, $st = 20(\text{-}23)$. a_1, a_2 and a_3 long, thin, tapering, glabrous, somewhat diverging, a_1 curved outwards, a_2 and a_3 curved inwards; *st* straight, bladder-shaped, tapering distally, converging, faintly pubescent. Distance $a_1 - a_1$ about as long as a_1, distance $a_1 - a_2$ about 6 times longer than distance $a_2 - a_3$; distance $st - st$ (2.7-)2.9 times as long as *st* and (0.5-)0.6 of distance $a_1 - a_1$.

Sternum. Posterior margin between b_1 with median indentation having steep sides; a median, broadly triangular lobe below anal plate. Relative lengths of setae ($a_1 = 100$): $b_1 = 135(\text{-}155)$, $b_2 = (57\text{-})60(\text{-}65)$, $b_3 = (74\text{-})89$. b_1 and b_3 of similar shape, thin, tapering, blunt, very short pubescence or striate only most distally; b_2 tapering, pointed, glabrous. b_1 1.4(-1.5) times as long as their interdistance; b_2 (0.8-)0.9 of distance $b_1 - b_2$; b_3 0.5 of distance $b_3 - b_3$.

Anal plate (Figs 21, 22) directed obliquely upwards, narrowest anteriorly, broader than long, lateral margins convex, posterolateral corners rounded and posterior margin straight. A stiletto-shaped appendage protruding backwards from posterior margin. Appendage longer than plate and with two small knobs at base and probably a perforation in the middle of basal part.

7. ***Allopauropus (A.) barrai*** sp. n. Figs 23-31

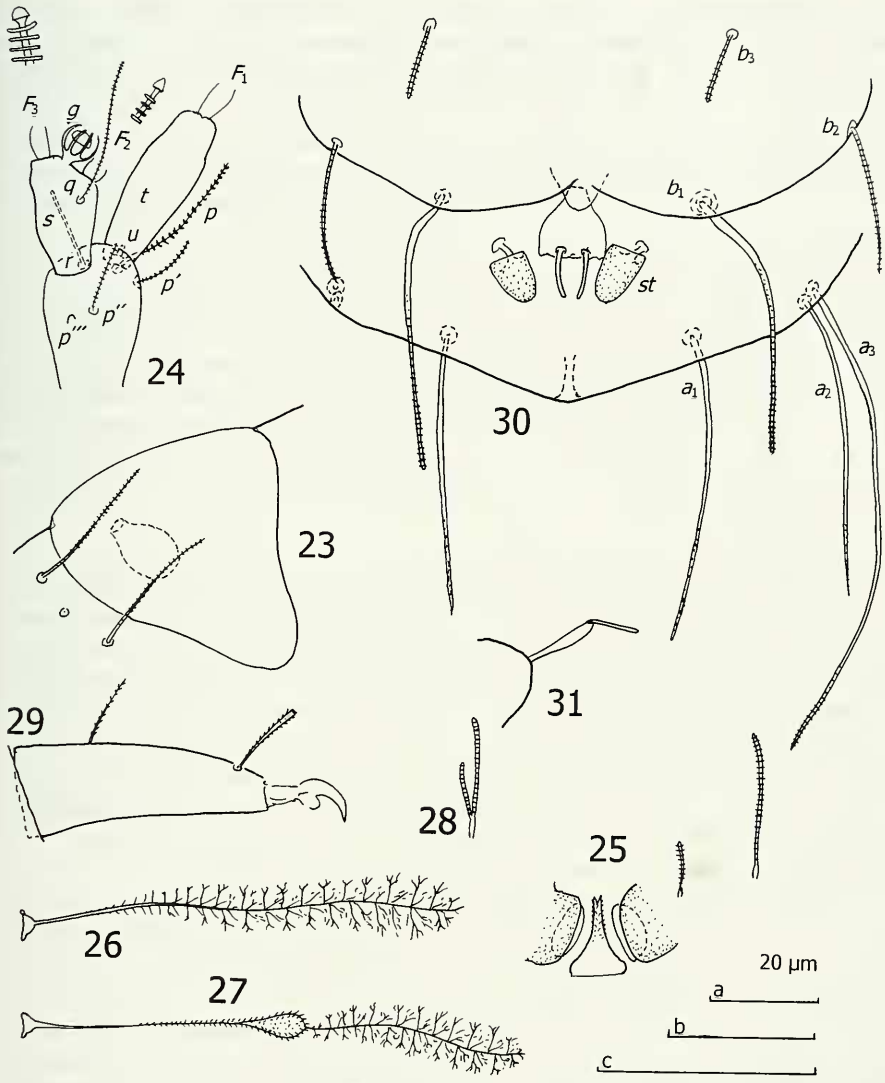
Type material. **Holotype**: subad. 8(♀), GABON, Plateau Forestier d'Ipassa, primary forest, from fruit on soil, 20.V.1966 (loc. IPA3/Fruit B, leg. Barra). **Paratypes**: GABON, Plateau Forestier d'Ipassa, primary forest, 3 subad. 8(1 ♀, 2 sex?), 27.VI.1966 (IPA9/AN6, leg. Barra).

Other material. Plateau Forestier d'Ipassa, primary forest, in soil, 1 juv. 5, 7.VI.1966 (loc. IPA5/E13, leg. Barra); ibidem, base of fern, 1 juv. 6, 1 juv. 5, 27.VI.1966 (loc. IPA9/AN4, leg. Barra). – Ntsibelong, 1 subad. 8(♀), 19.II.1962 (loc. 3, leg. Condé). – Mayiga, Endoumé, 1 juv. 6, 12.II.1962 (loc. 7, leg. Condé).

Total number. 9 specimens.

Diagnosis. *A. (A.) barrai* sp. n. belongs to a homogenous group of species described from the Ivory Coast by Remy (1948b): *A. (A.) liticen* Remy, *A. (A.) buccinator* Remy and *A. (A.) vouauxi* Remy. These four species have great similarities in the antennae and the bothriotricha, and in the pygidium with its anal plate. The new species is distinguished from Remy's three species by the shape of the T_3 [with swelling in the middle in *A. (A.) barrai* sp. n., axis thin without swelling in the others] and the posterior part of the pygidial tergum [broadly triangular in *A. (A.) barrai* sp. n., rounded with median indentation in the others].

Etymology. Dedicated to the collector, Dr J.A. Barra.



FIGS 23-31

Allopauropus (A.) barrai sp. n., holotype, subad. 8(♀). 23, right temporal organ with interior pistil, lateral view; 24, right antenna, sternal view; 25, collum segment, median and left part, sternal view; 26, T_1; 27, T_3; 28, seta on trochanter of leg 8; 29, tarsus of leg 8; 30, pygidium, sternal view; 31, anal plate, lateral view. Scale a: Figs 26-27; b: Figs 23-25, 28-29; c: Figs 30-31.

DESCRIPTION

Length. (0.95-)0.97 mm.

Head. Tergal setae not available for study. Temporal organs (Fig. 23) short, in lateral view triangular and faintly pubescent. No posterior aperture but an inner ovoid pistil in posterior half.

Antennae (Fig. 24). Segment 4 with 5 setae and rudiment of a 6th one, i. e. *p'''*. Setae cylindrical, blunt, annulate. Relative lengths of setae: $p = 100, p' = p'' = (43\text{-})45$, $r = 50(\text{-}52)$, $u = (6\text{-})7$. Tergal seta *p* 0.9 of length of tergal branch *t*. The latter somewhat fusiform, 2.8(-3.0) times as long as its greatest diameter and 1.4 times as long as sternal branch *s*, this (1.7-)1.9 times as long as its greatest diameter and with distinctly truncate anterodistal corner. Seta *q* somewhat thinner than *p*, cylindrical, blunt, striate, 1.2 times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100$, $bs_1 = 6$; $F_2 = 27(\text{-}28)$, $bs_2 = (2\text{-})3$; $F_3 = (77\text{-})79$, $bs_3 = 5$. F_2 thinnest. F_1 3.5(-3.6) times as long as *t*, F_2 and F_3 1.6 and (4.5-)4.6 times as long as *s*, respectively. Distal calyces of F_1 and F_3 hemispherical, those of F_2 smaller and conical. Flagella axes cylindrical below calyx. Globulus *g* as long as wide, with ≈ 9 thin bracts; width of *g* 0.6(-0.7) of greatest diameter of *t*. Antennae faintly pubescent.

Trunk. Setae of collum segment (Fig. 25) simple, subcylindrical, blunt, striate, sublateral ones 2.9 times as long as submedian ones; sternite process with small base and narrow anterior lengthening with apical incision; appendages low, with wide caps. Appendages faintly pubescent, process distinctly pubescent anteriorly, caps glabrous.

Setae on tergites not available for study.

Bothriotricha (Figs 26, 27). Relative lengths: $T_1 = 100$, $T_2 = 104$, $T_3 = 112$, $T_5 = 178$. All with simple straight axes. T_1 and T_2 possessing thin axes, most proximally glabrous, more outwards with thin pubescence hairs, these at first short and simple, then longer and branched. Proximal half of T_3 thin but at the middle a distinct clavate thickening, axis outside it very thin; pubescence on proximal half and on thickening consisting of short simple oblique hairs, on distal half as on T_1 and T_2. T_5 with minute pubescence of very simple oblique hairs.

Legs. Tibia of legs 2-8 short, annulate. Setae on coxa and trochanter (Fig. 28) of leg 8 furcate, branches thin, cylindrical, striate, primary branch almost twice longer than secondary branch. More anteriorly setae on trochanter similar but those on coxae simple without rudiment of secondary branch.

Tarsus of leg 8 (Fig. 29) 2.8 times as long as its greatest diameter, tapering. Setae with short oblique pubescence, proximal one cylindrical and pointed, distal one somewhat clavate. Proximal seta 0.3 of length of tarsus, about as long as distal seta. Cuticle of tarsus faintly pubescent.

Pygidium (Fig. 30). *Tergum*. Posterior part between setae a_3 obtusely triangular. Relative lengths of setae: $a_1 = 100$, $a_2 = (91\text{-})97$, $a_3 = 153(\text{-}179)$, $st = 20(\text{-}25)$. a_1, a_2 and a_3 long, thin, tapering, glabrous except most distally, curved inwards; *st* bladder-shaped, with faint pubescence, converging. Distance $a_1 - a_1$ 0.8 of length of a_1, distance $a_1 - a_2$ about 4 times as long as distance $a_2 - a_3$; distance $st - st$ 2.1(-2.2) times as long as *st* and 0.5 of distance $a_1 - a_1$.

Sternum. Posterior margin with broadly V-shaped indentation between b_1 and small triangular lobe with rounded tip below anal plate. Relative lengths of setae ($a_1 = 100$): $b_1 = 87(\text{-}97)$, $b_2 = (41\text{-})50$, $b_3 = 22(\text{-}23)$. Setae striate, b_1 and b_2 thin, tapering; b_3 subcylindrical. b_1 1.1 times as long as their interdistance; b_2 1.2(-1.3) times as long as distance $b_1 - b_2$; b_3 0.2 of distance $b_3 - b_3$.

Anal plate (Figs 30, 31) directed obliquely upwards, about as broad as long, narrowest anteriorly, lateral margins convex and posterior margin almost straight,

posterolateral corners right-angled. Two submedian appendages projecting backwards from sternal side of posterior margin, these 0.6 of length of plate, cylindrical, blunt, somewhat curved inwards. Plate and appendages glabrous.

8. ***Allopauropus (A.) ipassaensis*** sp. n. Figs 32-44

Type material. **Holotype**: ad. 9(♀), GABON, Plateau Forestier d'Ipassa, primary forest, soil, 23.VI.1966 (loc. IPA8/AVCT5, leg. Barra).

Total number. 1 specimen.

Diagnosis. Among several similar species in the subgenus the new species can be distinguished by the following combination of characters: the tergal setae of the head are cylindrical, the temporal organs have a distinct inner pistil, the antennal branches *t* and *s* are proportionately long, the distinctly stalked antennal globulus *g* has few bracts, the appendage of the collum segment has a deep anterior incision, and the bothriotricha T_1 and T_2 have long branched hairs on distal half.

Etymology. A latinized adjective of the name Ipassa.

DESCRIPTION

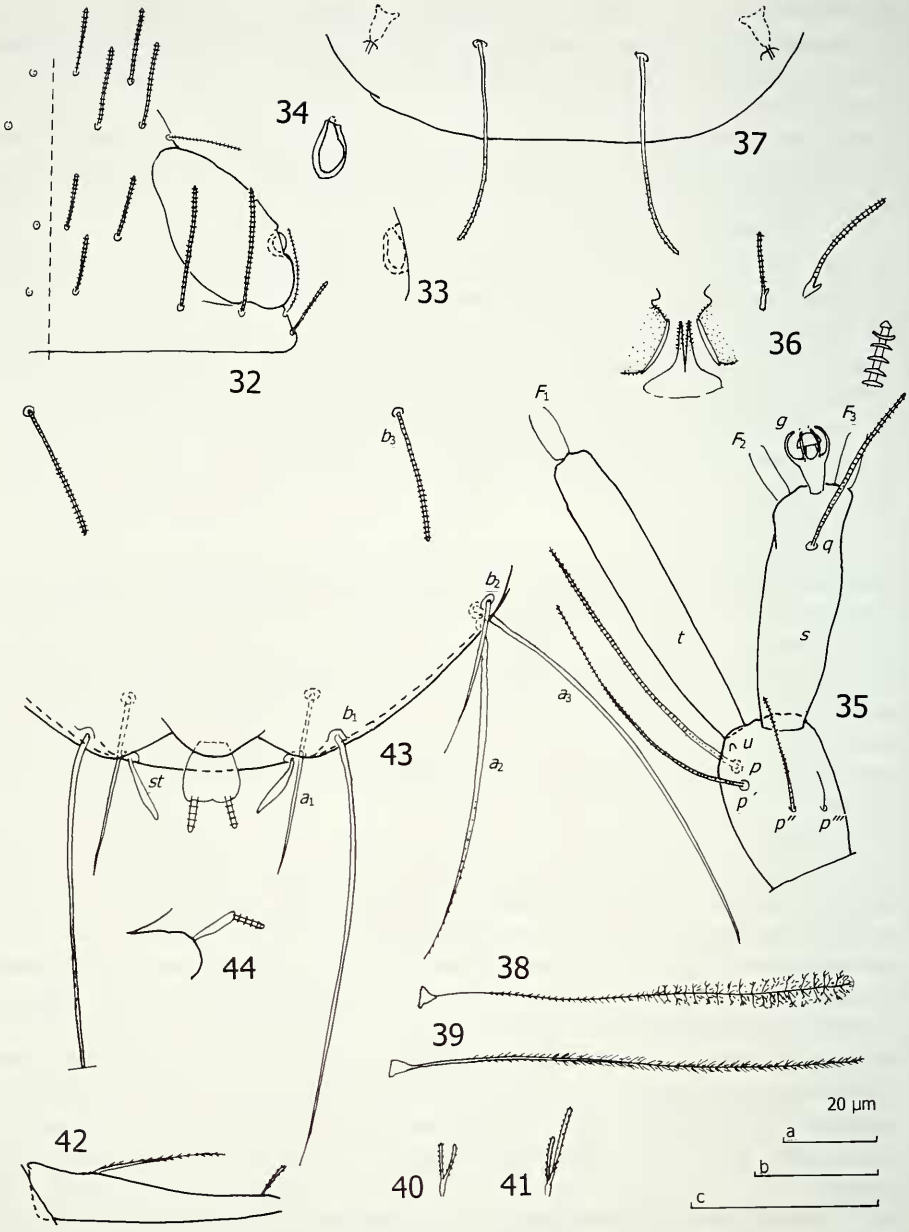
Length. 0.72 mm.

Head (Fig. 32). Tergal setae cylindrical, thin, blunt, striate, of medium lengths or long. Relative lengths of setae, 1st row: $a_1 = 10, a_2 = 11$; 2nd row: $a_1 = 12, a_2 = 13, a_3 = 11$; 3rd row: $a_1 = 8, a_2 = 10$; 4th row: $a_1 = a_4 = 9, a_2 = 17, a_3 = 18$; lateral group: $l_1 = 13, l_2 = l_3 = 10$. Ratio $a_1/a_1 - a_1$ in 1st row 1.5, in 2nd row 0.9, in 3rd row 0.6 and in 4th row 0.8. Temporal organs 1.1 times as long as their shortest interdistance; in posterior half a claviform pistil (Figs 33, 34) in a depression of the cuticle; pistil 3 times longer than its greatest diameter. No small posterior aperture present. Head cuticle glabrous.

Antennae (Fig. 35). Segment 4 with 6 setae, 5 of them cylindrical, distally tapering, striate, one rudimentary. Relative lengths of setae: $p = 100, p' = 86, p'' = 37, p''' = 9, r = 34, u = 1$. Tergal seta *p* as long as tergal branch *t*. The latter very slender, somewhat tapering proximally, 5.8 times as long as its greatest diameter and 1.3 times as long as sternal branch *s*, the latter 2.9 times as long as its greatest diameter and with its anterodistal corner somewhat truncate. Seta *q* cylindrical, blunt, striate, as thick as *p'*, almost 0.8 of length of *s*. Lengths of flagella (basal segments included) and basal segments: $F_1 = ?, bs_1 = 6$; $F_2 = 48, bs_2 = 6$; $F_3 = 50, bs_3 = 6$ μm. F_2 thinnest; F_2 and F_3 1.8 and 1.9 times as long as *s* respectively. Distal calyces of F_2 and F_3 proportionately small and conical. Axis of flagella not widened below calyx. Globulus *g* 1.4 times as long as wide; 8-9 bracts; width of *g* 0.8 of greatest diameter of *t*. Antennae glabrous.

Trunk. Setae of collum segment (Fig. 36) furcate, cylindrical, blunt, striate, with rudimentary secondary branch, sublateral setae 1.5 times as long as submedian setae; sternite process narrow anteriorly, with deep anterior incision; appendages low and with flattened caps; appendages and anterior part of process with short but distinct pubescence.

Setae on anterior tergites as submedian setae on head; on posterior tergites longer, and shortly pubescent. 4+4 setae on tergite I, 6+6 on II-IV, 6+4 on V and 4+2



FIGS 32-44

Allopauropus (A.) ipassaensis sp. n., holotype, ad. 9(♀). 32, head, median and right part, tergal view; 33, pistil, sternal view; 34, pistil, lateral view; 35, left antenna, sternal view; 36, collum segment, median and left part, sternal view; 37, tergite VI, right posteromedian part; 38, T_1; 39, T_3; 40, seta on coxa of leg 9; 41, seta on trochanter of leg 9; 42, tarsus of leg 9; 43, pygidium, median and left part, sternal view; 44, anal plate, lateral view. Scale a: Figs 32, 37-42; b: Figs 33-34, 36; c: Figs 35, 43-44.

on VI. Posterior setae on tergite VI (Fig. 37) 1.3 times as long as their interdistance and as long as pygidial setae a_1.

Bothriotricha (Figs 38, 39). Their relative lengths: $T_1 = 100$, $T_2 = 103$, $T_3 = 111$, $T_4 = 145$, $T_5 = 211$. All with very thin axes, those of T_3 thickest. Pubescence hairs short simple, oblique everywhere except on distal half of T_1 and T_2, hairs there increasing in length outwards and becoming branched.

Legs. Setae on coxa (Fig. 40) and trochanter (Fig. 41) of leg 9 furcate, branches cylindrical, blunt, shortly pubescent; branches equal in length on coxal seta, primary branch twice longer than secondary branch on seta of trochanter. More anterior setae with rudimentary secondary branch.

Tarsus of leg 9 (Fig. 42) tapering, 4.6 times as long as its greatest diameter. Proximal seta long, tapering, pointed, with short oblique pubescence; its length 0.5 of length of tarsus and 3.6 times as long as cylindrical, blunt, striate, distal seta. Cuticle of tarsus somewhat pubescent.

Pygidium (Fig. 43). *Tergum*. Posterior margin evenly rounded. Relative lengths of setae: $a_1 = 100$, $a_2 = 93$, $a_3 = 107$, $st = 18$. a_1 and a_2 tapering, glabrous, the former also directed upwards, straight, pointed, the latter curved inwards. a_3 as a_2 but longer and directed obliquely outwards. *st* somewhat fusiform, a little curved inwards, converging. Distance $a_1 - a_1$ 0.4 of length of a_1, distance $a_1 - a_2 \approx 5$ times longer than distance $a_2 - a_3$; distance $st - st$ 2.4 times as long as *st* and as long as distance $a_1 - a_1$.

Sternum. Posterior margin between b_1 with deep, broadly V-shaped indentation and rounded lobe below anal plate. Relative lengths of setae ($a_1 = 100$): $b_1 = 112$, $b_2 = 38$ and 40, $b_3 = 33$. Setae thin, b_1 and b_2 tapering and pointed, the former almost glabrous, the latter glabrous; b_3 cylindrical, blunt, striate. b_1 1.7 times as long as their interdistance; b_2 0.7-0.8 of distance $b_1 - b_2$; b_3 0.4 of distance $b_3 - b_3$.

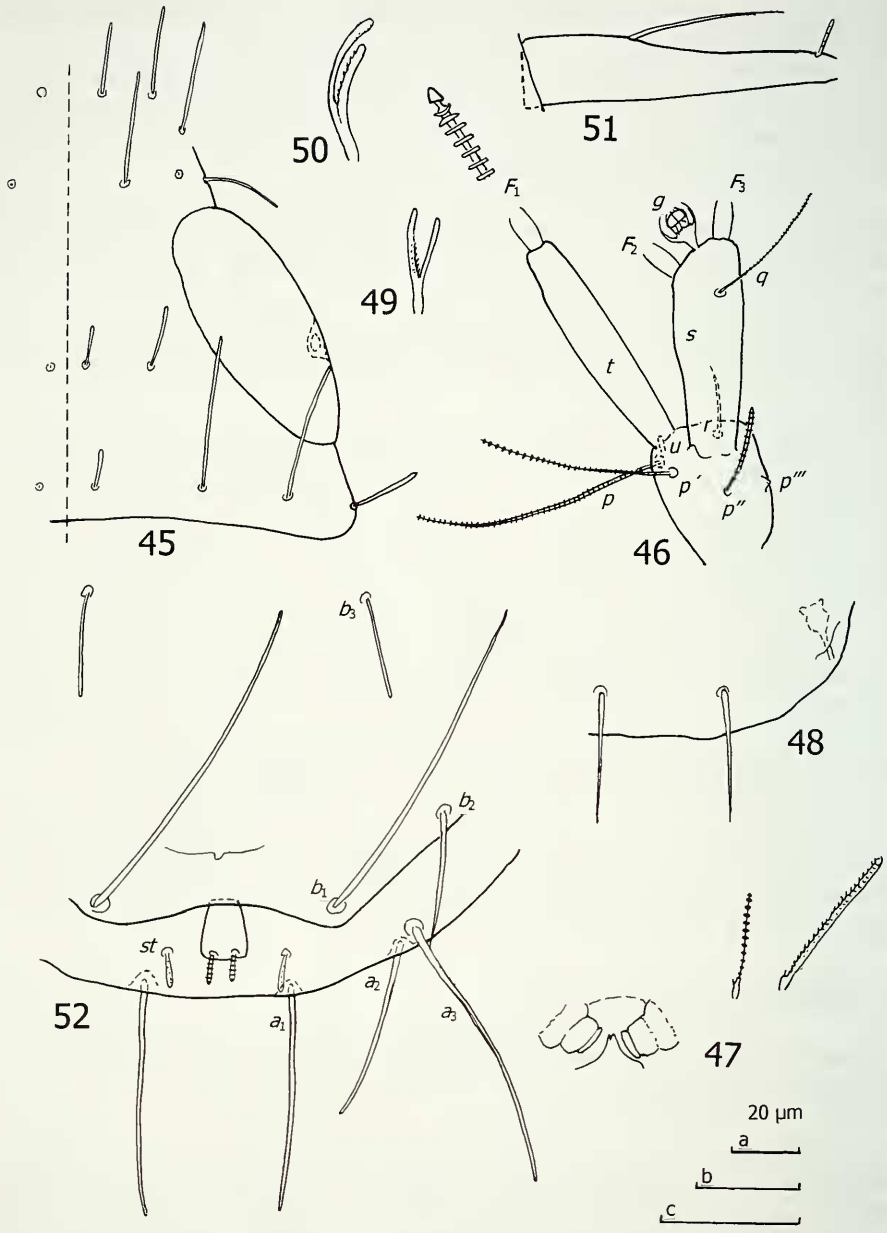
Anal plate (Figs 43, 44) directed obliquely upwards, about as broad as long, narrowest anteriorly, lateral margins convex, posterolateral corners rounded and posterior margin straight with minute median indentation; two cylindrical, blunt, striate, somewhat diverging appendages protruding backwards from sternal side of posterior margin, length of appendages 0.6 of length of plate.

9. ***Allopauropus (A.) singesensis*** sp. n. Figs 45-52

Type material. **Holotype**: ad. 9(♀), Gabon, Île aux Singes, in the Ivindo River, 10 km downstream Makokou, primary forest, at base of fern, 11.VII.1966 (loc. IS3/AN4 B, leg. Barra). **Paratype**: same data as for holotype, 1 ad. 9(♀), 4.VII.1966 (loc. IS2/7, leg. Barra).

Total number. 2 specimens.

Diagnosis. *A. (A.) singesensis* sp. n. may be closest to *A. (A.) inornatus* (Hansen) from Paraguay and *A. (A.) siamensis* (Hansen) from Thailand (Hansen, 1902). They have similarities both in antennae and pygidium. Good distinctive characters in relation to *A. (A.) inornatus* (Hansen) are the shape of the tergal setae on the head [thin and cylindrical in *A. (A.) singesensis* sp. n., thicker and clavate in *A. (A.) inornatus*], the shape of the *st* [subcylindrical in *A. (A.) singesensis* sp. n., distinctly clavate in *A. (A.) inornatus*] and the shape of the anal plate [longer than broad, with sharp posterolateral corners and posteriorly directed appendages in *A. (A.) singesensis* sp. n., as long as broad, with rounded posterolateral corners and diverging appendages



FIGS 45-52

Allopauropus (A.) singesensis sp. n., holotype, ad. 9(♀). 45, head, median and right part, tergal view; 46, left antenna, sternal view; 47, collum segment, median and left part, sternal view; 48, tergite VI, right posteromedian part; 49, setae on coxa of leg 9; 50, seta on trochanter of leg 9; 51, tarsus of leg 9; 52, pygidium, sternal view. Scale a: Fig 48; b: Fig 45, 49-51; c: Figs 46-47, 52.

in *A. (A.) inornatus*]. The new species is distinguished from *A. (A.) siamensis* by the length of the distal seta on the tarsus of leg 9 [0.5 of length of tarsus in *A. (A.) singesensis* sp. n., 0.1-0.2 in *A. (A.) siamensis*], the length of the pygidial setae [long in *A. (A.) singesensis* sp. n., short in *A. (A.) siamensis*] and the shape of the *st* [cylindrical in *A. (A.) singesensis* sp. n., thick and clavate in *A. (A.) siamensis*].

Etymology. A latinized adjective of the name Singes.

Description

Length. (0.75-)0.78 mm.

Head (Fig. 45). Tergal setae of medium lengths or long, thin, cylindrical, blunt, glabrous. Relative lengths of setae (holotype only), 1st row: $a_1 = 10$, $a_2 = 11$; 2nd row: $a_1 = 15$, $a_2 = ?$, $a_3 = \approx 11$; 3rd row: $a_1 = 5$, $a_2 = 8$; 4th row: $a_1 = 5$, $a_2 = a_3 = 19$, $a_4 = 9$; lateral group not studied. Ratio $a_1/a_1 - a_1$ in 1st row 0.9, in 2nd row 1.0, in 3rd row 1.2 and in 4th row 0.7. Temporal organs 1.3 times as long as their shortest interdistance; in posterior half a small claviform pistil in a depression of the cuticle. No posterior aperture. Head cuticle glabrous.

Antennae (Fig. 46). Segment 4 with 5 setae and rudiment of a 6th one, i. e. p'''. Setae thin, cylindrical, blunt, striate-annulate. Relative lengths of setae: $p = 100$, $p' = 68(76)$, $p' = 35(38)$, $r = 27(29)$, $u = 8$. Tergal seta *p* as long as tergal branch *t*. The latter somewhat fusiform, 5.1(5.6) times as long as its greatest diameter and 1.1(1.2) times as long as sternal branch *s*; this 3.1(3.4) times as long as its greatest diameter and with its anterodistal corner distinctly truncate. Seta *q* thinner than *p*, cylindrical, striate, 0.6 of length of *s*. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100$, $bs_1 = 6$; $F_2 = (73)74$, $bs_2 = 5$; $F_3 = (74)75$, $bs_3 = 6$. F_2 thinnest. F_1 (2.6)2.9 times as long as *t*, F_2 and F_3 2.2 and 2.2(2.3) times as long as *s* respectively. Distal calyces conical. Flagella axes very little widened below calyx. Globulus *g* 1.3(1.5) times as long as wide with ≈ 9 thin bracts; width of *g* 0.8 of greatest diameter of *t*. Antennae glabrous.

Trunk. Setae of collum segment (Fig. 47) furcate, with thin rudiment of secondary branch; main branch cylindrical, on sublateral setae striate, on submedian setae annulate. Sublateral setae 1.4 times as long as submedian ones; sternite process low, anterior lengthening with minute apical incision; appendages with distal half cylindrical and proximal half conical, caps flat. Appendage and processes glabrous.

Setae on anterior tergites glabrous, somewhat thickening distally, on posterior tergites tapering distally. 4+4 setae on tergite I, 6+6 on II-IV, 6+4 on V and 4+2 on VI. Posterior setae on tergite VI (Fig. 48) 1.2 times as long as their interdistance and as long as pygidial setae a_1.

Bothriotricha. Relative lengths: $T_1 = 100$, $T_2 = (65)67$, $T_3 = 52(60)$, $T_4 = 61(62)$, $T_5 = (84)93$. All with simple straight axes, T_3 thickest. Anterior bothriotricha glabrous, posterior pairs with faint pubescence only most distally.

Legs. Setae on coxa (Fig. 49) and trochanter (Fig. 50) of leg 9 furcate, branches (sub)cylindrical, with sparse pubescence; branches subequal in length on coxal seta, secondary branch longest on seta of trochanter. Secondary branch rudimentary on more anterior setae.

Tarsus of leg 9 (Fig. 51) tapering, 4.3(5.0) times as long as its greatest diameter. Setae thin, with minute pubescence, proximal seta pointed, distal one cylindrical. Proximal seta 0.5 of length of tarsus and 4.6 times as long as distal seta. Cuticle of tarsus glabrous.

Pygidium (Fig. 52). *Tergum*. Posterior part between setae a_3 evenly rounded. Relative lengths of setae: $a_1 = 100$, $a_2 = (71)80$, $a_3 = 104(112)$, $st = 16$. a_1, a_2 and a_3 thin, tapering, curved inwards, glabrous, a_2 converging, a_3 diverging, *st* subcylindrical and converging, straight, with minute pubescence. Distance $a_1 - a_1$ (0.5-)0.6 of length of a_1, distance $a_1 - a_2$ 3.5(4.0) times as long as distance $a_2 - a_3$; distance $st - st$ 4.9(5.0) times as long as *st* and 0.8 of distance $a_1 - a_1$. Tergum glabrous.

Sternum. Posterior margin with broad and shallow indentation between b_1. Relative lengths of setae ($a_1 = 100$): $b_1 = (123)141$, $b_2 = (50)54$, $b_3 = (39)43$. Setae thin, b_1 and b_2, tapering, with short oblique pubescence most distally, b_3 cylindrical, glabrous. b_1 (1.4)1.5 times as long interdistance; b_2 as long as distance $b_1 - b_2$; b_3 0.4 of distance $b_3 - b_3$. Sternum glabrous.

Anal plate glabrous, 1.1 times as long as broad, narrowest anteriorly, lateral margins convex and posterior margin somewhat convex, posterolateral corners distinct. Two submedian appendages projecting backwards from sternal side of posterior margin. These 0.5 of length of plate, straight, cylindrical, blunt, striate.

10. ***Allopauropus (A.) cleofanus*** sp. n. Figs 53-60

Type material. **Holotype**: ad. 9(♀), Gabon, Mayiga, Endoumé, old plantation near the village, in soil, 21.II.1962 (loc. 7, leg. Condé).

Total number. 1 specimen.

Diagnosis. The subequal length of the flagellae F_2 and F_3 and the pygidial sternum with setae b_3 on distinct diverging lobes are characters which place *A. (A.) cleofanus* sp. n. close to *A. (A.) bicornis* Remy from Kenya (Remy, 1948a) and Angola (Remy, 1955a). There are also similarities in the general shape of the anal plate, but it has good distinctive characters too [narrowest anteriorly and with pointed appendages in *A. (A.) cleofanus* sp. n., broadest anteriorly and with cylindrical appendages in *A. (A.) bicornis*].

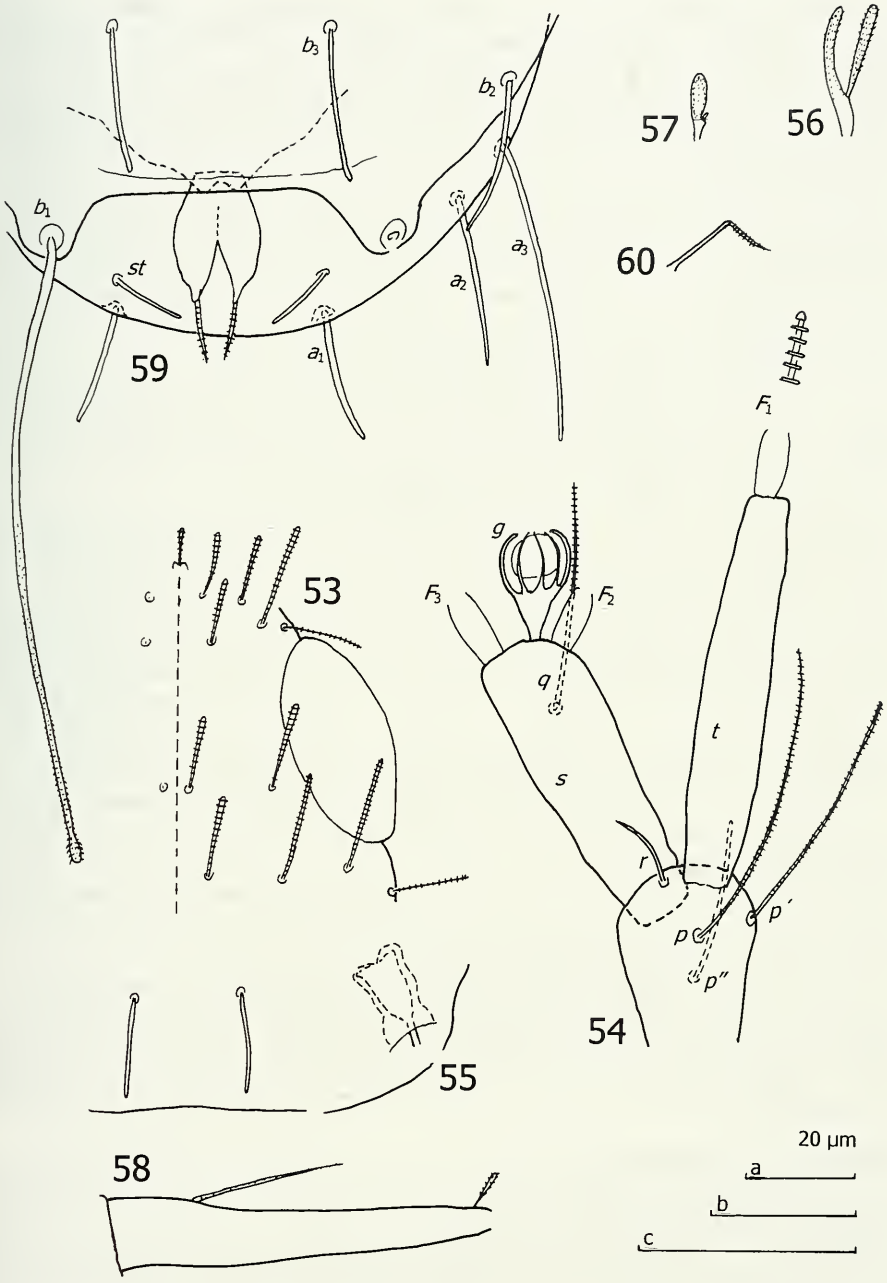
Etymology. From Anglo-Saxon cleofan = cleave, split (posterior half of anal plate).

Description

Length. 0.98 mm.

Head (Fig. 53). Tergal setae subcylindrical, blunt, striate, some sublateral ones long. Relative lengths of setae, 1st row: $a_1 = 10$, $a_2 = 11$; 2nd row: $a_1 = a_3 = 12$, $a_2 = 15$; 3rd row: $a_1 = 10$, $a_2 = 12$; 4th row: $a_1 = 12$, $a_2 = 15$, $a_3 = 16$, $a_4 = 12$; lateral group: $l_1 = l_3 = 15$, $l_2 = 12$. Ratio $a_1/a_1 - a_1$ in 1st row 1.2, 2nd row 1.0, 3rd row 2.6 and 4th row 1.3. Temporal organs 2.4 times as long as their shortest interdistance. Small posterior aperture outside posterior margin at level of l_1. Head cuticle glabrous.

Antennae (Fig. 54). Segment 4 with 4 thin, cylindrical, striate setae. Relative lengths of setae: $p = 100$, $p' = 83$, $p'' = 52$, $r = 24$. Neither p''' nor u present. Tergal seta p 0.8 of length of tergal branch t. The latter somewhat fusiform, 3.6 times as long as its greatest diameter and 1.2 times as long as sternal branch s; this 3.2 times as long



FIGS 53-60

Allopauropus (A.) cleofanus sp. n., holotype, ad. 9(♀). 53, head, median and right part, tergal view; 54, left antenna, tergal view; 55, tergite VI, right posteromedian part; 56, seta on trochanter of leg 9; 57, seta on coxa of leg 8; 58, tarsus of leg 9; 59, pygidium, median and left part, sternal view; 60, anal plate, lateral view. Scale a: Figs 53, 56-58; b: Fig 55; c: Figs 54, 59-60.

as its greatest diameter and with its anterodistal corner truncate. Seta *q* as *p"*, 0.7 of length of *s*. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100$, $bs_1 = 8$; $F_2 = 82$, $bs_2 = 8$; $F_3 = 81$, $bs_3 = 8$. F_1 2.3 times as long as *t*, F_2 and F_3 2.2 times as long as *s*. Distal calyces small, helmet-shaped. Globulus *g* 1.6 times as long as wide, almost 0.4 of length of *s*, ≈ 10 bracts; width of *g* 0.9 of greatest diameter of *t*. Antennae glabrous.

Trunk. Collum segment not studied. Setae on anterior tergites as submedian setae on head; on posterior tergites longer, most posteriorly tapering and glabrous. 4+4 setae on tergite I, 6+6 on II-IV, 6+4 on V and 4+2 on VI. Posterior setae on tergite VI (Fig. 55) as long as their interdistance and 1.2 times as long as pygidial setae a_1.

Bothriotricha. Relative lengths: $T_1 = 100$, $T_2 = 159$, $T_3 = 165$, $T_4 = ?$, $T_5 = 271$. All with very thin axes, those of T_3 thickest; pubescence minute.

Legs. Setae on coxa and trochanter of leg 9 (Fig. 56) furcate, shortly pubescent, branches equal in length, main branch curved, secondary branch straight. Corresponding setae on more anterior legs (Fig. 57) furcate, main branch foliform, with short pubescence, and secondary branch rudimentary, blunt, glabrous.

Tarsus of leg 9 (Fig. 58) tapering, slender, 5.0 times as long as its greatest diameter. Proximal seta tapering, pointed, with minute pubescence, 0.4 of the length of tarsus, 3.7 times as long as clavate, striate, distal seta. Cuticle of tarsus glabrous.

Pygidium (Fig. 59). *Tergum*. Posterior margin evenly rounded. Relative lengths of setae: $a_1 = 100$, $a_2 = 133$, $a_3 = 247$, $st = 58$. Setae glabrous, a_1, a_2 and a_3 diverging, a_1 also cylindrical, curved outwards, a_2 tapering, somewhat curved inwards, a_3 cylindrical, somewhat curved inwards; *st* cylindrical, somewhat curved inwards and converging. Distance $a_1 - a_1$ 1.6 times as long as a_1, distance $a_1 - a_2$ twice longer than distance $a_2 - a_3$; distance $st - st$ 2.7 times as long as *st* and as long as distance $a_1 - a_1$.

Sternum. Posterior margin between b_1 with deep and broad indentation with flat bottom, setae b_1 protruding from outer part of distinct, somewhat diverging lobes. Relative lengths of setae ($a_1 = 10$): $b_1 = 52$, $b_2 = 13$, $b_3 = 12$. b_1 and b_3 subcylindrical, the former somewhat widened most distally and with short pubescence on distal half, the latter glabrous; b_2 tapering, glabrous. b_1 1.9 times as long as their interdistance; b_2 0.9 of distance $b_1 - b_2$; b_3 0.7 of distance $b_3 - b_3$.

Anal plate (Fig. 60) directed obliquely upwards, appendages obliquely downwards, plate 1.3 times longer than broad, narrowest anteriorly, lateral margins convex, deep posterior incision reaching to middle of plate, posterior corners strongly tapering. One long appendage, 0.5 of length of plate protruding from distal part of each of the two posterior lobes.

Subgenus ***Decapauropus*** Remy, 1957

11. ***Allopauropus (D.) bouini*** Remy, 1955

Allopauropus Bouini Remy, 1955a: 129-130, fig. 8.

Material. Île aux Singes, in the Ivindo River, 10 km downstream Makokou, primary forest, in soil, depth 0-5 cm, 12 ad. 9(♀), 4.VII.1966 (loc. IS2/6, leg. Barra).

Total number. 12 specimens.

General distribution. Earlier reported from Angola (Remy, 1955a; Scheller, 1975), Borneo (Scheller, 2001), Florida (Remy, 1958b) and Canada (Scheller, 1984). The species is rare and has a very wide but discontinuous distribution.

12. ***Allopauropus (D.) proximus*** Remy, 1948
Allopauropus proximus 1948a : 572-573, fig. 4.

Material. Île aux Singes, in the Ivindo River, 10 km downstream Makokou, primary forest, in dead wood, 1 ad. 9(♀), 25.V.1966 (loc. IS1/2, leg. Barra). – Ntsibelong, right side of the Ivindo River, under wood, 1 ad. 9(♀), 4.VII.1966 (loc. IS1/2, leg. Barra); ibidem, right bank of the Ivindo River, under bark, 40 ad. 9(♀), 6 juv. 6, 19.II.1962 (loc. 3, leg. Grassé). – Loualouah, right side of the Ivindo River, under bark, 5 ad. 9(♀), 10.III.1962 (loc. 3, leg. Condé); ibidem, under bark on trunk and in litter, 6 ad. 9(♀), 8-10.III.1962 (leg. Remy); ibidem, right bank of the Ivindo River, under bark, 2 ad. 9(♀), 1 juv. 6, 8.III.1962 (loc. 3bis, leg. Grassé). – Mayiga, Endoumé, old plantation near village, in soil, 3 ad. 9(♀), 21.II.1962 (loc. 7, leg. Remy); Mayiga, forest near road to Boué, 2 ad. 9(♀), 22.II.1962 (loc. 8, leg. Remy). – Edoungavion, at road to Boué, near Ntsibelong, 6 ad. 9(♀), 1 juv. 6, 19.II.1962 (loc. 4, leg. Bernardi); ibidem, beginning of trail to Alarmintang, near small stream, under bark on soil, 4 ad. 9(♀), 1 juv. 6, 2.III.1962 (loc. 15, leg. Remy). – Mbeza, secondary forest, near trail at old plantation, 16 ad. 9(♀), 20.II.1962 (loc. 5, leg. Condé & Remy); ibidem, 9 ad. 9(♀), 1 juv. 6, 20.II.1962 (loc. 6, leg. Condé & Remy). – Makokou, small valley, in dell with source, near the water intake, 2 ad. 9(♀), 1 juv. 6, 18.II.1962 (loc. 48, leg. Foulé); ibidem, Loaloa, 11 ad. 9(♀), 1 subad. 8(♀), 18.II.1962 (loc. 2, leg. Condé); ibidem, near the quay of Somifer, under brick and bark, 2 ad. 9(♀), 24.II.1962 (loc. 11, leg. Remy). – Plateau Forestier d'Ipassa, primary forest, soil, 1 juv. 6, 20.V.1966 (loc. IPA3/B1, leg. Barra); ibidem, primary forest, soil, 8 ad. 9(♀), 20.V.1966 (loc. IPA3/4, leg. Barra); ibidem, primary forest, soil, 6 ad. 9(♀), 1.VI.1966 (loc. IPA/4, leg. Barra); ibidem, primary forest, burned soil, 6 ad. 9(♀), 11.VI.1966 (loc. IPA/6Cl1, leg. Barra); ibidem, primary forest, burned soil, 2 ad. 9(♀), 11.VI.1966 (loc. IPA/6Cl3, leg. Barra); ibidem, primary forest, under wood, 1 ad. 9(♀), 1 stad.?, 11.VI.1966 (loc. IPA/6Cl5, leg. Barra); ibidem, primary forest, litter, 1 juv. 6, 11.VII.1966 (loc. IPA/6Cl1, leg. Barra); ibidem, primary forest, at foot of *Palisota*, 1 ad. 9(♀), 11.VI.1966 (loc. IPA/6Cl11, leg. Barra); ibidem, primary forest, base of plant, 3 ad. 9(♀), 27.VI.1966 (loc. IPA/9AN6, leg. Barra); ibidem, primary forest, at foot of fern, 11 ad. 9(♀), 3 juv. 6, 27.VI.1966 (loc. IPA/9AN7, leg. Barra).
Total number. 166 specimens.

General distribution. Earlier reported from Angola (Remy, 1955a; Scheller, 1975). The species is widely and discontinuously distributed in the tropics and subtropics of America, Africa and south Asia.

13. ***Allopauropus (D.) cylindricus*** sp. n. Figs 61-71

Type material. **Holotype**: ad. 9(♀), Gabon, Plateau Forestier d'Ipassa, primary forest, soil, 20.V.1966 (loc. IPA3/4, leg. Barra). **Paratypes**: same data as for holotype, 2 ad. 9(♀).
Other material. Plateau Forestier d'Ipassa, primary forest, soil, 1 juv. 6, 20.V.1966 (loc. IPA3/4, leg. Barra). – Edoungavion, at road to Booué, near Ntsibelong, 1 ad. 9(♀), 19.II.1962 (loc. 4, leg. Bernardi). – Mayiga, left side of road to Booué, at trail near small stream, 1 ad. 9(♀), 22.II.1962 (loc. 7, leg. Condé & Remy). – Makokou, Loaloa, 1 ad. 9(♀), 18.II.1962 (loc. 2, leg. Condé).
Total number. 7 specimens.

Diagnosis. Some species in *Allopauropus* are characterized by a complicated ramification of the bothriotrica combined with a linguiform anal plate with two posterior appendages. Among them the new species is closest to *A. (D.) machadoi* Remy from Angola (Remy, 1955a). The T_3 are almost identical, but the two species are easily distinguished by, e.g. the length of the antennal flagella [F_3 0.7 of F_1 in *A. (D.) cylindricus* sp. n., F_3 only a little shorter than F_1 in *A. (D.) machadoi*], the length of the setae on the tarsus of the last pair of legs [proximal seta 0.3-0.4 of the distal one in *A. (D.) cylindricus* sp. n., 0.75 in *A. (D.) machadoi*], the shape of the styli and the anal plate [styli cylindrical and lateral margins of anal plate concave anteriorly in *A. (D.)*

cylindricus sp. n., somewhat clavate styli and anal plate with convex lateral margins in *A. (D.) machadoi*]. There are also similirities with *A. (D.) arbusculosus* Remy & Bello from Madagascar (Remy & Bello, 1960) as to the antennae, bothriotricha and pygidium.

Etymology. From Latin cylindrus = roller (referring to the appendages of the collum segment).

DESCRIPTION

Length. (0.51-)0.52(-0.56) mm.

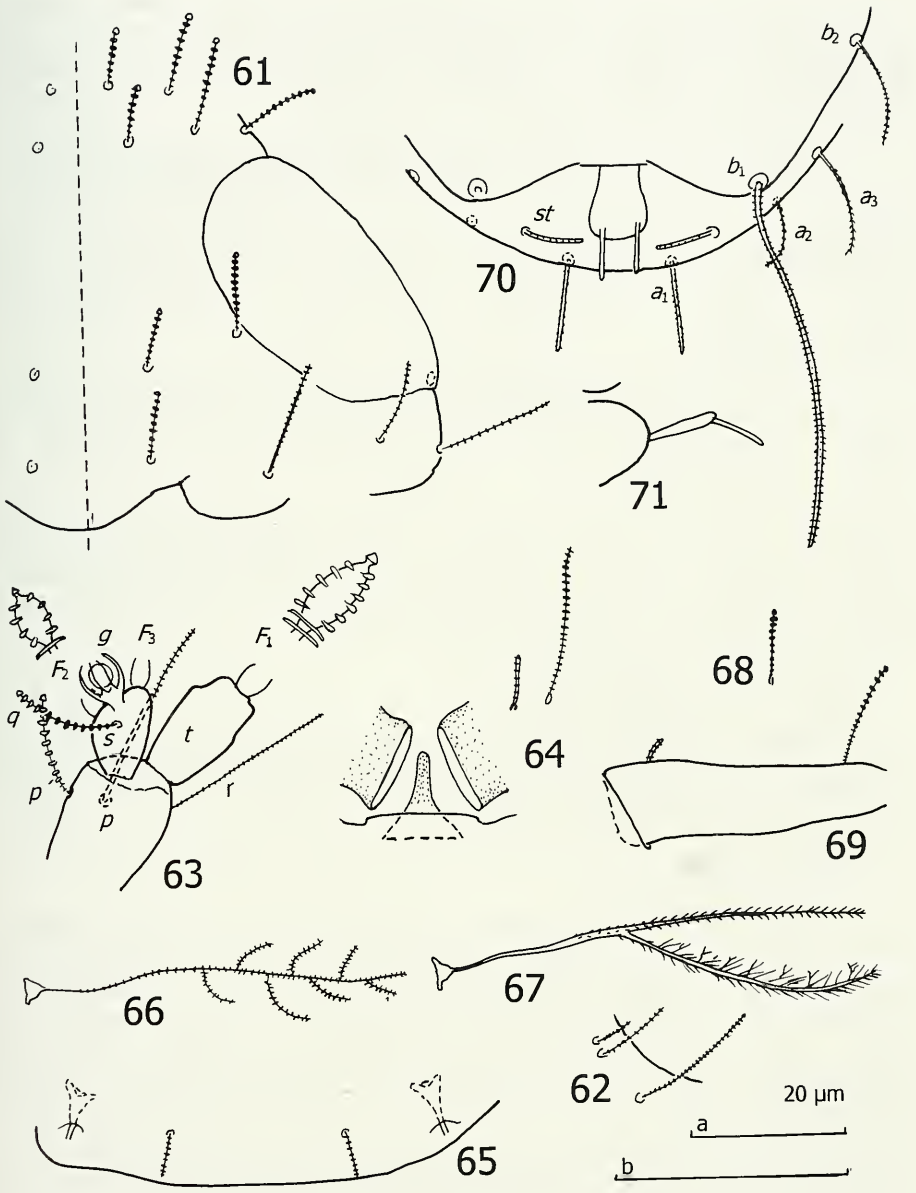
Head (Fig. 61). Tergal setae of medium length, subcylindrical, blunt; most of them annulate, posterolateral ones striate. Relative lengths of setae, 1st row: a_1 = 10, a_2 = (13-)14; 2nd row: a_1 = (9-)10(-11), a_2 = (14-)16, a_3 = 14(-15); 3rd row: a_1 = (10-)11, a_2 = (13-)14(-18); 4th row: a_1 = (10-)12, a_2 = 20(-24), a_3 = 14, a_4 = 20(-24); lateral group (one paratype only) (Fig. 62): l_1 = 7, l_2 = 15, l_3 = 24. Ratio $a_1/a_1 - a_1$ in 1st and 4th rows (0.5-)0.6, in 2nd and 3rd rows 0.5. Temporal organs (1.1-)1.3(-1.4) times as long as their shortest interdistance. Neither pistil nor posterior aperture close to the posterior margin of temporal organ. Head cuticle glabrous.

Antennae (Fig. 63). Segment 4 with setae *p*, *p'* and *r*; *p''* and *p'''* not ascertained. Setae cylindrical, *p* and *p'* annulate, *r* very thin and striate. Relative lengths of setae: *p* = 100, *p'* = (52-)59, *r* = (65-)88. Tergal seta *p* 1.7(2.1) times as long as tergal branch *t*. The latter subcylindrical, 1.8(-2.0) times as long as its greatest diameter and (as long as –)1.1 times as long as sternal branch *s*, this 1.6(-1.7) times as long as its greatest diameter and with its anterodistal corner distinctly truncate. Seta *q* somewhat thinner than *p'*, cylindrical, blunt, annulate, as long as (-1.4 times as long as) length of *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 4(-5); F_2 = 27(-33), bs_2 = 2; F_3 = 71(-75), bs_3 = 4. F_1 (5.7-)6.4 times as long as *t*, F_2 and F_3 (1.7-)1.8 and (4.6-)4.7 times as long as *s*, respectively. Distal calyces with very small caps and distal part of flagella axes strongly fusiform, the one of F_1 almost as large as the whole sternal branch *s*. Globulus *g* 1.2(-1.3) times as long as wide and its width 0.7(-0.8) of greatest diameter of *t*; 9(-10) bracts present. Antennae glabrous.

Trunk. Setae of collum segment (Fig. 64) simple, subcylindrical, blunt, striate, sublateral one annulate distally. Sublateral setae (2.6-)3.0(-3.3) times as long as submedian setae; sternite process narrow, anterior half cylindrical, blunt, without incision; appendages short, very wide, cylindrical, with flat caps. Both process and appendages with very short pubescence.

Setae on tergites as submedian setae on head; 4+4 setae on tergite I, 6+6 on II-IV,? on V and 4+2 on VI. Posterior setae on tergite VI (Fig. 65) 0.3 of their interdistance and 0.5 of the length of pygidial setae a_1.

Bothriotricha (Figs 66, 67). Relative lengths: T_1 = 100, T_2 = (104-)111(-113), T_3 = 112(-119), T_4 = (134-)139, T_5 = (156-)167. All but T_5 branched, axes and branches thin. T_1, T_2 and T_4 similar to each others, with straight main axis and somewhat bow-shaped oblique simple branches; length of these branches reaching 0.2 of length of bothriotrix; T_1 with (5-)7 branches, a little more on T_2 and T_4. T_3 bifurcate, one of the branches thin and straight, the other with thicker axis and curved. In two paratypes curved branch with a small end-swelling. Pubescence oblique-erect, hairs simple except on inner side of curved branch of T_3.



FIGS 61-71

Allopauropus (A.) cylindricus sp. n., 61, 63-71 holotype, ad. 9(♀), 62 paratype ad. 9(♀). 61, head, median and right part, tergal view; 62, lateral group of setae; 63, left antenna, sternal view; 64, collum segment, median and left part, sternal view; 65, tergite VI, posteromedian part; 66, T_1; 67, T_3; 68, seta on coxa of leg 9; 69, tarsus of leg 9; 70, pygidium, sternal view; 71, anal plate, lateral view. Scale a: 64, 66-69; b: Figs 61-63, 65, 70-71.

Legs. Setae on coxa (Fig. 68) and trochanter of all legs simple, cylindrical, striate-annulate, blunt. Tarsus (Fig. 69) of leg 9 tapering, 3.6 times as long as its greatest diameter. Proximal seta short, curved, cylindrical, striate, blunt, 0.1(-0.2) of length of tarsus. Distal seta long cylindrical, annulate, blunt, (2.6-)3.8 times as long as proximal seta. Cuticle of tarsus glabrous.

Pygidium (Fig. 70). *Tergum*. Posterior margin rounded. Relative lengths of setae: $a_1 = 100$, $a_2 = (62\text{-})75(\text{-}77)$, $a_3 = (122\text{-})125(\text{-}141)$, $st = 63(\text{-}90)$. Setae thin, cylindrical; a_1 straight, somewhat diverging, annulate; a_2 and a_3 curved inwards and downwards, annulate distally, diverging. *st* curved inwards, converging. Distance $a_1 - a_1$ (as long as –) 1.1 times as long as length of a_1, distance $a_1 - a_2$ 1.5 times as long as distance $a_2 - a_3$; distance $st - st$ (2.5-)3.2(-3.3) times as long as *st* and 1.8(-2.0) times as long as distance $a_1 - a_1$.

Sternum. Posterior margin between b_1 with broad indentation. Relative lengths of setae (a_1=100): $b_1 = (344\text{-})425$, $b_2 = (95\text{-})118$. Setae tapering, striate-annulate, b_2 pointed, diverging, curved inwards. $b_1$1.4(-1.5) times as long as interdistance; b_2 (0.5-)0.6(-0.7) of distance $b_1 - b_2$.

Anal plate (Figs 70, 71) linguiform, narrowest anteriorly, lateral margins (straight –) somewhat indented; plate (1.2-)1.4 times as long as broad, directed backwards. Two posterior appendages protruding from posterosternal margin; appendages thin, straight, cylindrical, blunt, (0.7-)0.8 of length of plate. Plate and appendages glabrous (the latter with minute pubescence).

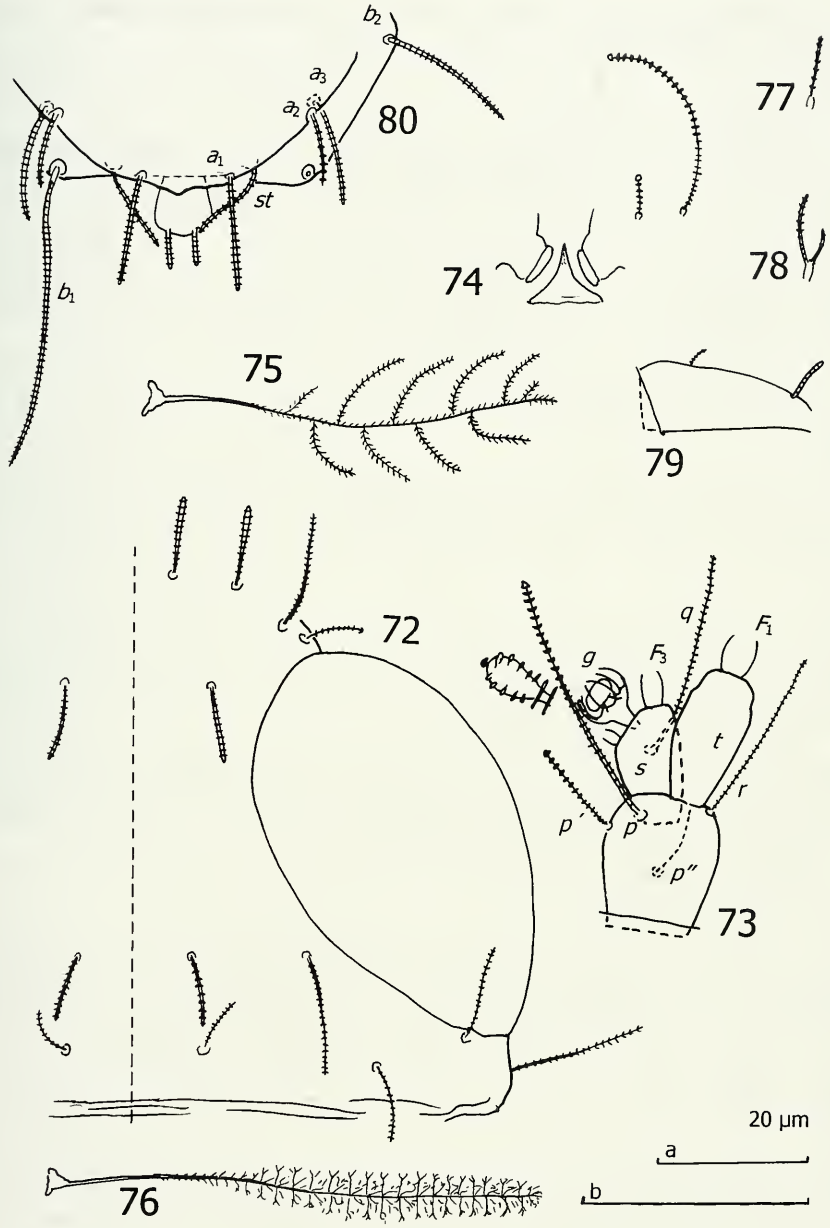
14. ***Allopauropus (D.) suppeditatus*** sp. n. Figs 72-80

Type material. **Holotype**: ad. 9(♀), Gabon, Plateau Forestier d'Ipassa, primary forest, in soil, 17.VI.1966 (loc. IPA7/VM4, leg. Barra). **Paratypes**: Gabon, Plateau Forestier d'Ipassa, primary forest, in soil, 1 ad. 9(♀), 17.VI.1966 (loc. IPA7/VM2, leg. Barra); ibidem, 1 subad. 8.(♀), 17.VI.1966 (loc. IPA7/VM5, leg. Barra).

Other material. Edoungavion, at road to Booué, near Ntsibelong, 1 ad. 9(♀), 19.II.1962 (loc. 4, leg. Bernardi).

Total number. 4 specimens.

Diagnosis. *A. (D.) suppeditatus* sp. n. has several characters in common with *A. (D.) tenuis* Remy (1948b), a species widely distributed in the tropics. There are similarities in the general shape of the head, antennae, bothriotricha T_1, T_2 and T_4 and in the chaetotaxy of the pygidium. *A. (D.) suppeditatus* sp. n. is distinguished from *A. (D.) tenuis* by the shape of the distal part of the antennal flagellum F_1 [axes only insignificantly widened in *A. (D.) suppeditatus* sp. n., almost ovoid in *A. (D.) tenuis*], the shape of the antennal globulus *g* [with narrow stalk in *A. (D.) suppeditatus* sp. n., with wide stalk in *A. (D.) tenuis*] and the shape of the T_3 [simple and without end-swelling in *A. (D.) suppeditatus* sp. n., branched and with end-swelling in *A. (D.) tenuis*]. *A. (D.) suppeditatus* sp. n. has also similarities with *A. (D.) cylindricus* sp. n. described above. Distinctive characters are the shape of the T_3 [axis simple in *A. (D.) suppeditatus* sp. n., bifurcate in *A. (D.) cylindricus* sp. n.], the length of the distal seta on the tarsus of leg 9 [twice longer than proximal seta in *A. (D.) suppeditatus* sp. n., 2.6-3.8 times as long as proximal seta in *A. (D.) cylindricus* sp. n.] and the length of the *st* [as long as a_1 in *A. (D.) suppeditatus* sp. n., shorter than a_1 in *A. (D.) cylindricus* sp. n.].



FIGS 72-80

Allopauropus (D.) suppeditatus sp. n., holotype, ad. 9(♀). 72, head, median and right part, tergal view; 73, right antenna, tergal view; 74, collum segment, median and left part, sternal view; 75, T_1; 76, T_3; 77, seta on coxa of leg 9; 78, seta on trochanter of leg 9; 79, tarsus of leg 9; 80, pygidium, sternal view. Scale a: Figs 74-79; b: Figs 72-73, 80.

Etymology. From Latin suppedito = have in abundance (referring to the branches on some bothriotricha).

DESCRIPTION

Length. 0.56(-0.72) mm.

Head (holotype only) (Fig. 72). Tergal setae of medium length, blunt, striate, those in 1st row somewhat clavate, the others cylindrical. Relative lengths of setae, 1st row: $a_1 = 10, a_2 = 11$; 2nd row: $a_1 = 10, a_2 = 17, a_3 = 9$; 3rd row: $a_1 = 9, a_2 = 16$; 4th row: $a_1 = 7, a_2 = 10, a_3 = 13, a_4 = 19$; lateral group: $l_1 = 31, l_2 = 24, l_3 = 16$. Ratio $a_1/a_1 - a_1$ in 1st row 1.1, in 2nd row 0.5, in 3rd row 0.6 and in 4th row 0.4. Temporal organs large, about twice longer than their shortest interdistance. No pistil; posterior aperture not ascertained. Head cuticle glabrous.

Antennae (Fig. 73). Segment 4 with 4 cylindrical, striate-annulate, blunt, setae, *r* thinnest. Relative lengths of setae: $p = 100, p' = 39(41), p' = 25(24), r = (62)65$. Tergal seta *p* 1.7(1.8) times as long as tergal branch *t*. The latter fusiform, 2.0(2.2) times as long as its greatest diameter and 1.1(1.2) times as long as sternal branch *s*, this 1.3(-1.5) times as long as its greatest diameter and with its anterodistal corner distinctly truncate. Seta *q* somewhat thinner than *p*, cylindrical, striate, blunt, 1.3 times as long as length of *s*. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100, bs_1 = 5(6)$; $F_2 = (26)27, bs_2 = 2$; $F_3 = 65(68), bs_3 = 5$. F_1 (6.0)7.1 times as long as *t*, F_2 and F_3 1.5(1.7) and 3.7(4.3) times as long as *s* respectively. Distal calyces with small caps and distal part of flagella axes strongly widened in F_2. Globulus *g* 1.2 times as long as wide; 13(14) bracts present; width of *g* 0.8(0.9) of greatest diameter of *t*. Antennae glabrous.

Trunk. Setae of collum segment (Fig. 74) simple, cylindrical, blunt, annulate. Sublateral setae (3.5)4.3 times as long as submedian setae; sternite process triangular, anteriorly pointed, without incision; appendages obliquely cylindrical, with flat caps. Minute pubescence on anterior part of process only.

Setae on tergites as posteromedian setae on head. 4+4 setae on tergite I, 6+6 on II-IV, ? on V and 4+2 on VI.

Bothriotricha (Figs 75, 76). Relative lengths (holotype only): $T_1 = 100$, $T_2 = 102$, $T_3 = 120$, $T_4 = 111$, $T_5 = 176$. All with very thin axes and all but T_3 and T_5 branched. T_1, T_2 and T_4 similar to each other, with straight main axis provided with several simple, bow-shaped, oblique branches, their length reaching up to 0.2 of length of bothriotrix; T_1 with 10 branches, T_2 and T_4 similar to T_1. T_3 and T_5 with simple straight axis, very thin in distal half of the former and in distal 3/5 of the latter. Pubescence on T_1, T_2, T_4 and on most proximal parts of T_3 and T_5 consisting of short straight oblique hairs, on distal half of T_3 long, erect, whorled and partly branched hairs, on most distal part of T_5 short erect hairs which at least partly may be branched.

Legs. Setae on coxa (Fig. 77) and trochanter (Fig. 78) of leg 9 cylindrical, blunt, striate; seta on coxa simple, seta on trochanter furcate with thin secondary branch 0.5 of length of primary branch. More anterior setae simple, straight, blunt, without rudiments of secondary branches. Tarsus of leg 9 (Fig. 79) strongly tapering, 2.5(-3.0) times as long as greatest diameter. Setae on tarsus somewhat curved, cylindrical, blunt, striate; proximal seta 0.1 of length of tarsus and 0.5 of length of distal seta. Tarsus glabrous.

Pygidium (Fig. 80). *Tergum*. Posterior margin rounded. Relative lengths of setae: a_1 = 100, a_2= (65)70, a_3 = 110(121), *st* = 94(113). Setae thin, cylindrical, striate; a_1 straight, somewhat diverging; a_2 and a_3 curved inwards, somewhat diverging, *st* curved inwards and converging. Distance $a_1 - a_1$ (as long as –) 1.1 times as long as length of a_1, distance $a_1 - a_2$ about 2.5 times as long as distance $a_2 - a_3$; distance *st* – *st* 1.5 times as long as *st* and 1.6 times as long as distance $a_1 - a_1$. Tergum glabrous.

Sternum. Posterior margin between b_1 with shallow indentation. Relative lengths of setae (a_1 = 10): b_1 = 35(42), b_2 = 12. b_1 and b_2 cylindrical, somewhat tapering, pointed, striate, the latter strongly diverging and curved inwards. b_1 1.2(1.3) times as long as interdistance; b_2 0.8(0.9) of distance $b_1 - b_2$. Sternum glabrous.

Anal plate as long as broad, linguiform, narrowest anteriorly, lateral margins somewhat convex, posterior margin convex, with two posteriorly directed appendages, these thin, straight, cylindrical, striate, blunt, 0.5 of length of plate. Plate glabrous.

15. ***Allopauropus (D.) isodacintrai*** sp. n. Figs 81-89

Type material. **Holotype**: ad. 9(♀), Gabon, Edoungavion, at road to Booué, near Ntsibelong, 19.II.1962 (loc. 4, leg. Bernardi). **Paratypes**: same data as holotype, 2 ad. 9(♂,♀).

Other material. Mayiga, Endoumé, forest near the village, 1 ad. 9(♀), 12.II.1962 (loc. 7, leg. Condé & Remy).

Total number. 4 specimens.

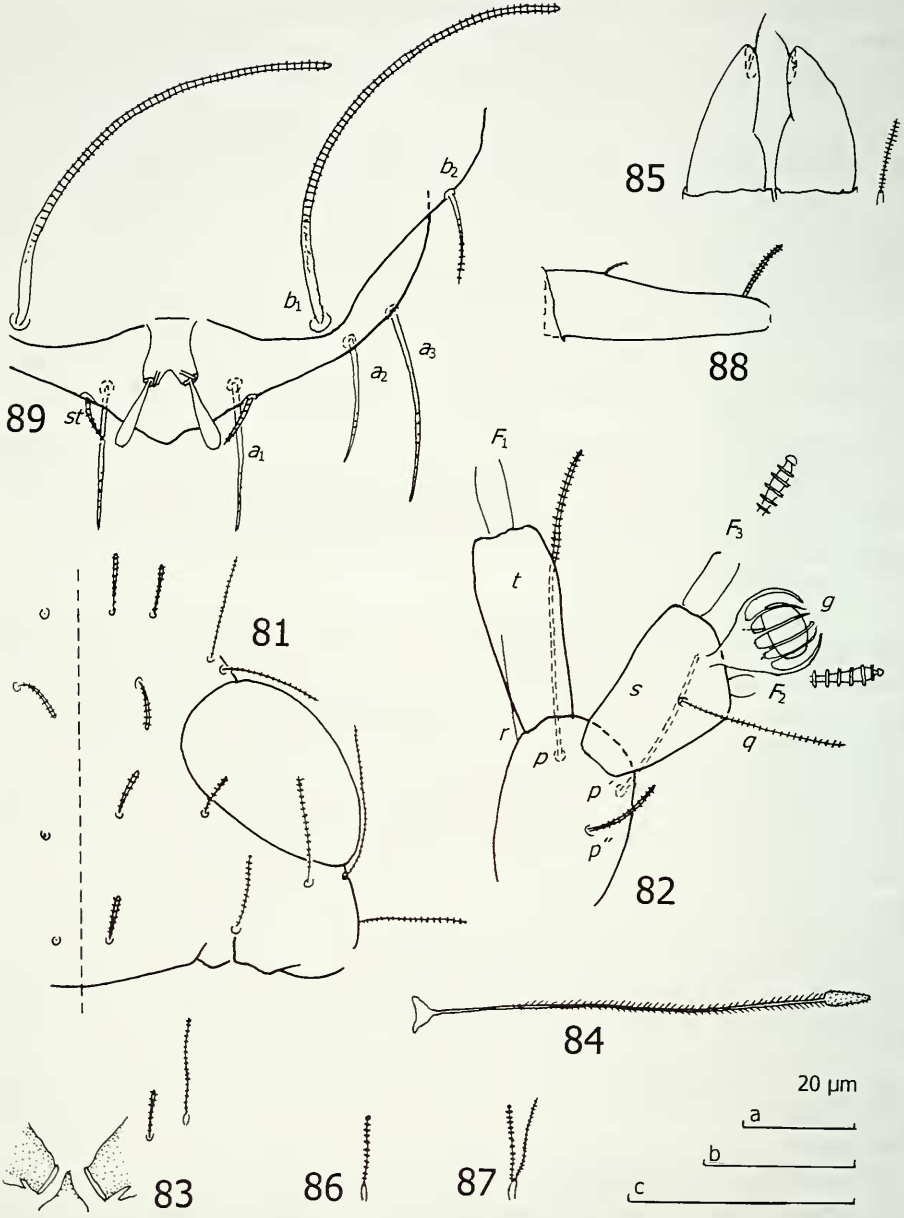
Diagnosis. *A. (D.) isodacintrai* sp. n. is a very close relative of *A. (D.) dacintrai* Scheller from Sierra Leone (Scheller, 1995). The two species are very alike as to the general chaetotaxy of the head, antennae and legs. The shape of the bothriotricha is also similar and the pygidium with the anal plate shows several similarities. The two species are well distinguished by the following characters: the shape of the axis of the distal part of the flagellae F_1 and F_3 [only somewhat widened in *A. (D.) isodacintrai* sp. n., very thick in *A. (D.) dacintrai*], the shape of the process of the collum segment [no incision anteriorly in *A. (D.) isodacintrai* sp. n., incised in *A. (D.) dacintrai*], the size of the end-swelling of bothriotrix T_3 [0.1 of length of bothriotrix in *A. (D.) isodacintrai* sp. n., twice that length in *A. (D.) dacintrai*], the shape of the genital papillae [distal half curved inwards by a transverse fold in *A. (D.) isodacintrai* sp. n., papillae straight with even inner side in *A. (D.) dacintrai*], the *st* [long and striate in *A. (D.) isodacintrai* sp. n., short and glabrous in *A. (D.) dacintrai*] and the number of appendages of the anal plate [4 in *A.(D.) isodacintrai* sp. n., 2 in *A. (D.) dacintrai*].

Etymology. From Greek isos = like [referring to the resemblance with *Allopauropus (D.) dacintrai*].

Description

Length. (0.38-)0.48 mm.

Head (Fig. 81). Submedian and sublateral setae of medium length, lateral ones fairly long. Relative lengths of setae, 1st row: a_1 = 10, a_2 = 9(-10); 2nd row: a_1 = 9, a_2 = 19, a_3 = (16-)17; 3rd row: a_1 = (8-)9, a_2 = 7(-8); 4th row: a_1 = 7(-8), a_2 = 13(-14), a_3 = 18, a_4 = 17; lateral group: l_1 = 30, l_2 = 20(-23), l_3 = 19(-20). Ratio $a_1/a_1 - a_1$ in 1st and 4th rows 0.9, in 2nd row 0.4 and in 3rd row 0.8. Temporal organs about as long as shortest interdistance. No pistil; probably posterior aperture at level of l_1 and l_2. Head cuticle glabrous.



FIGS 81-89

Allopauropus isodacintrai sp. n., 81-84, 86-89 holotype, ad. 9(♀), 85, paratype, ad. 9(♀). 81, head, median and right part, tergal view; 82, right antenna, sternal view; 83, collum segment, median and left part, sternal view; 84, T_3; 85, genital papillae, anterior view; 86, seta on coxa of leg 9; 87, seta on trochanter of leg 9; 88, tarsus of leg 9; 89, pygidium, sternal view. Scale a: Figs 83, 85-88; b: Figs 81, 84; c: Figs 82, 89.

Antennae (Fig. 82). Segment 4 with 4 cylindrical, striate, blunt setae, *r* very thin. Relative lengths of setae: $p = 100$, $p' = (52\text{-})54$, $p'' = (25\text{-})27$, $r = 31$. Tergal seta *p* 1.4 times as long as tergal branch *t*. The latter fusiform, (2.0-)2.4 times as long as greatest diameter and (0.9-)1.1 times as long as sternal branch *s*, this 1.6(-1.8) times as long as its greatest diameter and with its anterodistal corner distinctly truncate. Seta *q* subcylindrical, striate, as long as length of *s*. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100$, $bs_1 = (7\text{-})8$; $F_2 = 32$, $bs_2 = 2(\text{-}3)$; $F_3 = 71(\text{-}86)$, $bs_3 = 8(\text{-}9)$. F_1 4.5(-5.5) times as long as *t*, F_2 and F_3 (1.5-)1.6 and 3.6(-4.2) times as long as *s*, respectively. Distal calyces with small caps and distal part of flagella axes only somewhat widened. Globulus *g* large, 1.3 times as long as wide; 16 bracts present; capsule bottom flat; width of *g* 1.1 times as wide as greatest diameter of *t*. Antennae glabrous.

Trunk. Setae of collum segment (Fig. 83) simple, striate, blunt, submedian setae somewhat clavate, sublateral setae cylindrical. Sublateral setae 2.4 times as long as submedian setae; sternite process triangular, pointed anteriorly without incision; appendages subcylindrical with flat caps. Short pubescence on appendages and anterior part of process.

Bothriotricha (Fig. 84). Relative lengths of bothriotricha: $T_1 = 100$, $T_2 = 101(\text{-}105)$, $T_3 = 81(\text{-}109)$, $T_4 = ?$, $T_5 = (?98\text{-})118(\text{-}169)$. All with straight, simple, very thin axes, T_1, T_2 and T_4 exceedingly thin. T_3 with thickest axis which most distally provided with a swelling, 4 times longer than wide and reaching 0.1 of length of bothriotrix. Pubescence of bothriotricha composed of simple, straight, short, oblique hairs, these strongest on distal half of T_3 below the swelling; the latter with very short erect pubescence.

Genital papillae (paratype) (Fig. 85). Subconical, distal half curved inwards, glabrous, 1.8 times as long as their greatest diameter; subapical seta 0.4 of the length of papilla. Coxal seta of leg 2 of the same shape as other coxal setae on anterior legs.

Legs. Setae cylindrical blunt striate, on coxa of leg 9 (Fig. 86) simple, on trochanter (Fig. 87) furcate with the branches subequal in length. Corresponding setae more anteriorly simple, without rudiments of secondary branches. Coxal setae somewhat clavate and shorter than setae on trochanter. Tarsus of leg 9 (Fig. 88) tapering, (3.5-)4 times as long as greatest diameter. Setae on tarsus cylindrical, striate, tapering distally; proximal seta short, curved, 0.1 of length of tarsus; distal seta longer, (1.5-)2.0 times longer than proximal seta. Cuticle of tarsus almost glabrous.

Pygidium (Fig. 89). *Tergum*. Posterior margin broadly triangular behind *st*. Relative lengths of setae: $a_1 = 100$, $a_2 = (80\text{-})85$, $a_3 = 140(\text{-}154)$, $st = 54(\text{-}70)$. Setae subcylindrical, curved inwards, distal half tapering, *st* converging, striate, a_1, a_2 and a_3 almost glabrous. Distance $a_1 - a_1$ 0.8(-0.9) of length of a_1, distance $a_1 - a_2$ about twice longer than distance $a_2 - a_3$; distance $st - st$ (1.9-)2.0 times as long as *st* and (1.1-)1.3 times as long as distance $a_1 - a_1$.

Sternum. Posterior margin between b_1 with shallow indentation. Relative lengths of setae (a_1=100): $b_1 = 308(\text{-}350)$, $b_2 = 61(\text{-}76)$. b_1 cylindrical, striate, blunt; b_2 tapering, curved inwards, pointed, distal half striate. b_1 (1.4-)1.5 times as long as interdistance; b_2 0.5 of distance $b_1 - b_2$.

Anal plate with concave lateral margins, posterior $^1/_4$ divided into two short branches by a V-shaped incision; branches subcylindrical, distally squarely truncate.

Plate with 4 diverging appendages: two large terminal ones, as long as plate, clavate; and two short sternal ones, cylindrical, 0.2 of length of large appendages. Plate and appendages glabrous.

16. ***Allopauropus (D.) stenygros*** sp. n. Figs 90-98

Type material. **Holotype**: ad. 9(♀), Gabon, Île aux Singes, in the Ivindo River, 10 km downstream Makokou, primary forest, in soil, 4.VI.1966 (loc. IS2/5, leg. Barra). **Paratypes**: same data as holotype, 3 ad. 9(♀), (leg. Barra); ibidem, 1 ad. 9(♂), 25.V.1966 (loc. IS1/1, leg. Barra); ibidem, 2 ad. 9(♀), 4.VI.1966 (loc. IS2/6, leg. Barra).

Total number. 7 specimens.

Diagnosis. *Allopauropus (D.) stenygros* sp. n. belongs to a group of species, which occurs in the Oriental region and tropical West Africa, and which possesses linguiform anal plates with two short posterior appendages and also similarities in the shape of the antennae. They are all incompletely known but good distinctive characters for *A. (D.) stenygros* sp. n. have been recognized in the following organs: in relation to *A. (D.) viarti* Remy (Remy, 1961) from Pondichéry (sternal antennal branch, anterior bothriotricha, genital papillae, pygidial setae a_1 and a_2); to *A. (D.) nemoralis* Remy (Remy, 1956b) from Madagascar (setae on leg 9, pygidial setae a_1 and a_2, appendages of anal plate); to *A. (D.) lupiger* Remy (Remy, 1959b) from Mauritius (bothriotricha, setae of pygidial tergum, anal plate); to *A. (D.) socius* Remy (Remy, 1948b) from the Ivory Coast (antennal branches, globulus *g*, posterior part of anal plate); and to *A. (D.) minutissimus* Remy (Remy, 1948b) from the Ivory Coast (tergal antennal branch, anterior bothriotricha, posterior part of anal plate).

Etymology. From Greek stenygros = narrow (referring to the anterior part of anal plate).

Description

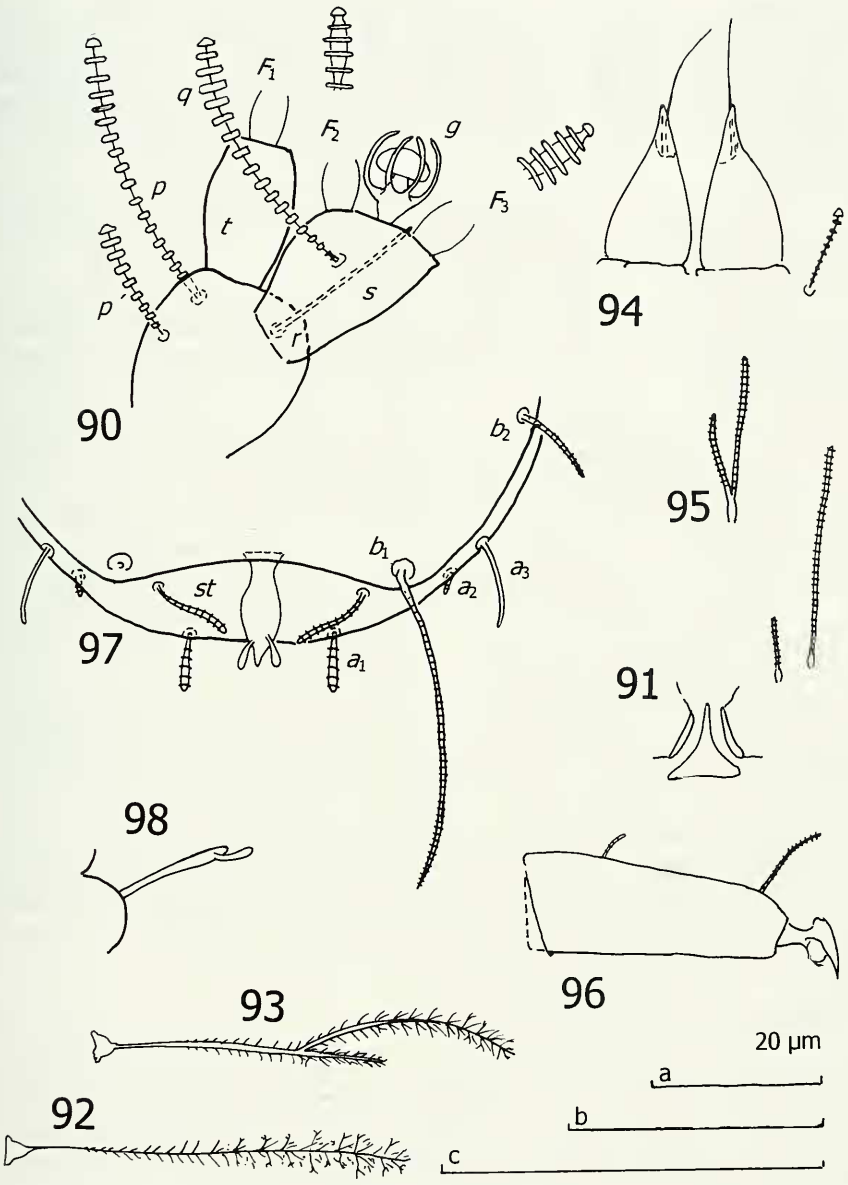
Length. (0.42-)0.43(-0.55) mm.

Head. Not studied.

Antennae (Fig. 90). Segment 4 with 4 blunt setae, *p*, *p'* and *p"* clavate, annulate, *r* cylindrical. Relative lengths of setae: *p* = 100, *p'* = (43-)47, *p"* = (38-)40(-43), *r* = (55-)59(-64). Tergal seta *p* (1.8-)2.1 times as long as tergal branch *t*. The latter fusiform, 1.5(-1.7) times as long as its greatest diameter and (1.5-)1.7 times as long as sternal branch *s*, this 1.4(-1.5) times as long as its greatest diameter and with its anterodistal corner truncate. Seta *q* as seta *p*, (1.5-)1.7 times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 7; F_2 = (35-)38(-40), bs_2 = 3(-4); F_3 = (81-)84(-88), bs_3 = 7. F_1 (5.4-)5.6 times as long as *t*, F_2 and F_3 1.7 and 3.8(-4.2) times as long as *s*, respectively. Distal calyces small, helmet-shaped. Globulus *g* 1.2 times as long as wide; 6-7 bracts present, width of *g* (0.5-)0.7 of greatest diameter of *t*. Antennae glabrous.

Trunk. Setae of collum segment (Fig. 91) simple, cylindrical, blunt, striate, sublateral one (3.5-)3.6(-3.7) times as long as submedian one; narrow anterior part of sternite process without apical incision; appendages short, with flattened caps; both process and appendages glabrous.

Setae on tergites not studied.



FIGS 90-98

Allopauropus stenygros sp. n., 90-93, 95-98 holotype, ad. 9(♀), 94, paratype, ad. 9(♀). 90, left antenna, sternal view; 91, collum segment, median and left part, sternal view; 92, T_1; 93, T_3; 94, genital papillae and seta on coxa of leg 2, anterior view; 95, seta on trochanter of leg 9; 96, tarsus of leg 9; 97, pygidium, sternal view; 98, anal plate, lateral view. Scale a: Figs 92-94; b: Figs 91, 95-98; c: Fig. 90.

Bothriotricha (Figs 92, 93). Relative lengths: T_1 = 100, T_2 = (105-)110, T_3 = (105-)104(-111), T_4 = 95(-109), T_5 = 115(-119). All except T_3 with simple axes, the latter bifurcate with branching in the middle. One branch short and straight, the other curved and 0.5 of length of bothriotrix. Pubescence consisting of short simple hairs, oblique on T_5, of increasing length distally and there with partly branched hairs on T_1 - T_4.

Genital papillae. (Fig. 94, paratype). Twice wider than long, widest near base, conical, pointed distally, glabrous, apical seta long, 0.9 of length of papilla. Seta on coxa of leg 2 simple, somewhat clavate, annulate.

Legs. Setae on coxa and trochanter (Fig. 95) of leg 9 furcate, branches thin, cylindrical, blunt, densely striate, secondary branch much shorter than primary branch. Corresponding setae on more anterior legs simple, probably without rudiment of secondary branch.

Tarsus of leg 9 (Fig. 96) tapering, (2.4-)2.5 times as long as its greatest diameter. Setae cylindrical, somewhat curved, striate; proximal seta 0.1(-0.2) of length of tarsus, 0.4 of length of distal seta. Cuticle of tarsus glabrous.

Pygidium (Fig. 97). *Tergum*. Posterior margin evenly rounded. Relative lengths of setae: a_1 = 10, a_2 = 4(-5), a_3 = (12-)14(-15), *st* = 7(-8). a_1 straight, a_2, a_3 and *st* curved inwards, a_2 and *st* cylindrical converging, striate, a_1 somewhat clavate, a_3 glabrous, tapering, diverging. Distance $a_1 - a_1$ (1.7-)2.2 times as long as a_1, distance $a_1 - a_2$ 3 times longer than distance $a_2 - a_3$; distance *st* – *st* 2.3(-2.5) times as long as *st* and 1.5 times as long as distance $a_1 - a_1$. Tergum glabrous.

Sternum. Posterior margin between b_1 with broad shallow bow-shaped indentation. Relative lengths of setae (a_1 = 10): b_1 = (48-)52, b_2 = (20-)23(-24). Setae striate, b_1 tapering, b_2 cylindrical. b_1 1.2(-1.3) times as long as interdistance; b_2 0.5 of distance $b_1 - b_2$. Sternum glabrous.

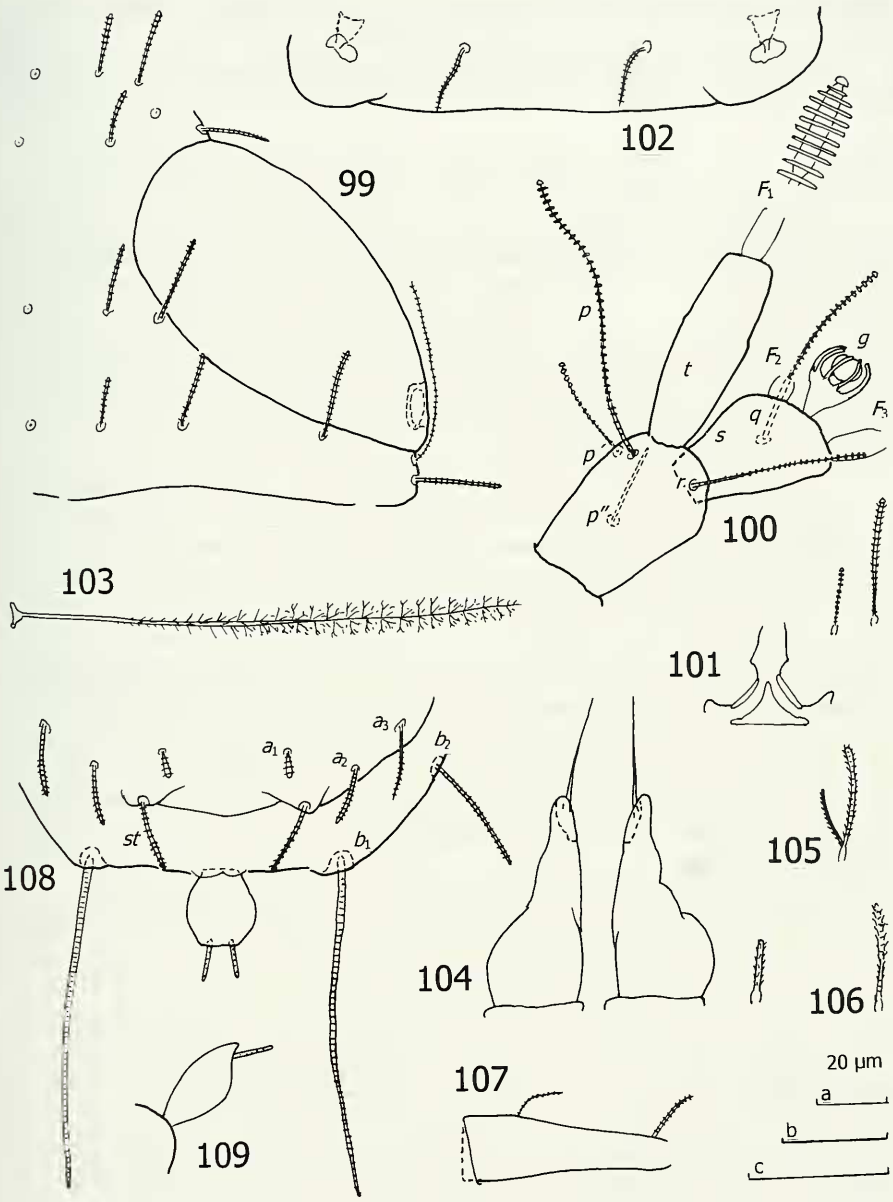
Anal plate (Figs 97, 98) directed obliquely upwards, 1.8 times as long as greatest breadth, broadest in the middle, lateral sides distinctly concave in anterior part, convex in the middle, posteriorly lengthened and sharpened to a point; two diverging clavate glabrous appendages protruding backwards from sternal side of distal part of plate, their length 0.3 of length of plate.

17. ***Allopauropus (D.) phakoides*** sp. n. Figs 99-109

Type material. **Holotype**: ad. 9(♀), Gabon, Île aux Singes, in the Ivindo River, 10 km downstream Makokou, primary forest, in soil, 4.VII.1966 (loc. IS2/3, leg. Barra). **Paratypes**: Gabon, Belinga, at trail along the drinking-water pipe, under piece of wood, 1 ad. 9(♀), 16.III. 1962 (loc. 33, leg. Condé); ibidem, 2 ad. 9(♀), 22.VII.1962 (loc. 55, leg. Condé). – Ntsibelong, right bank of the Ivindo River, under bark, 2 ad. 9(♂,♀), 19.II.1962 (loc. 3, leg. Grassé). – Edoungavion, 1 subad. 9(♀), 26.II.1962 (loc. 12, leg. Condé & Remy).

Total number. 7 specimens.

Diagnosis. *Allopauropus (D.) phakoides* sp. n. is characterized by the following combination of characters: setae thin, antennal branches subequal in length, antennal globulus *g* with many bracts, bothriotricha with thin straight axes, pubescence on T_3 longest and partly branched, pygidial setae a_1 short and clavate, anal plate lens-shaped with two posterior striate appendages. The species has affinities to *A. (D.) eburnensis* and *A. (D.) vesperalis* both described by Remy from the Ivory Coast (Remy, 1957b)



FIGS 99-109

Allopauropus (D.) phakoides sp. n., 99-103, 105-109 holotype, ad. 9(♀), 104, paratype, ad. 9(♂). 99, head, median and right part, tergal view; 100, right antenna, tergal view; 101, collum segment, median and left part, sternal view; 102, tergite VI, posterior part; 103, T_3; 104, genital papillae and seta on coxa of leg 2, anterior view; 105, seta on coxa of leg 9; 106, seta on trochanter of leg 9; 107, tarsus of leg 9; 108, pygidium, tergal view; 109, anal plate, lateral view. Scale a: Figs 101, 103, 105-107; b: Figs 99, 102, 104, 108-109; c: Fig. 100.

but are easily distinguished from them by the shape of the pygidial setae a_1 and the anal plate.

Etymology. From Greek phakos = lentil and lens of the eye (referring to the shape of the anal plate).

DESCRIPTION

Length. (0.54-)0.72 mm.

Head (Fig. 99). Tergal setae of medium length or fairly long, thin, cylindrical, striate-annulate. Relative lengths of setae, 1st row: a_1 = 10, a_2 = (10-)12; 2nd row: a_1= 9(-10), a_2 = ?(18-20), a_3 = 11(-14); 3rd row: a_1 = (6-)10, a_2 = (11-)14; 4th row: a_1 = (6-)8, a_2 = 12(-15), a_3 = a_4 = (11-)14; lateral group: l_1 = (28-)29(-35), l_2 = (19-)20 (-22), l_3 = ?(22-23). Ratio $a_1/a_1 - a_1$ in 1st row 1.0(-1.2), 2nd row 0.6(-0.8), 3rd row (0.7-)0.9, 4th row (0.6-)0.7. Temporal organs large, (2.1-)3.1 times as long as their shortest interdistance; small pistil in posterior part and small aperture at posterior margin at level of l_2. Head cuticle glabrous.

Antennae (Fig. 100). Segment 4 with setae p, p' p'' and r; p''' not ascertained. Setae cylindrical, striate-annulate. Relative lengths of setae: p = 100, p' = (36-)37(-43), p'' = 30(-42), r = (52-)63. Tergal seta p 1.4(-1.7) times as long as tergal branch t. The latter somewhat fusiform, 2.7(-3.2) times as long as its greatest diameter and (1.1-)1.3 times as long as sternal branch s, this (1.6-)1.7(-1.9) times as long as its greatest diameter and with its anterodistal corner distinctly truncate. Seta q cylindrical, blunt, annulate, (as long as –) 1.3 times as long as length of s. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 5(-6); F_2 = 27(-37), bs_2 = 2(-3); F_3 = (74-)84(-87), bs_3 = 5(-6). F_1 (4.5-)4.8(5.1) times as long as t, F_2 and F_3 (1.7-)1.9(-2.1) and (4.6-)5.3 times as long as s, respectively. Distal calyces with small caps and distal part of flagella axes only somewhat widened. Globulus g 1.5(-1.6) times as long as wide and its width (0.8-)0.9 of greatest diameter of t; ≈ 12 bracts present. Antennae glabrous.

Trunk. Setae of collum segment (Fig. 101) simple, subcylindrical, blunt, striate-annulate. Sublateral seta (1.8-)1.9 times as long as submedian seta; sternite process narrow anteriorly and without apical incision; appendages short, wide, cylindrical, caps flat. Both process and appendages glabrous.

Setae on tergites as submedian setae on head; 4+4 setae on tergite I, 6+6 on II-IV, 6+? on V and 4+2 on VI. Posterior setae on tergite VI (Fig. 102) (0.3-)0.4(-0.5) of their interdistance and (2.5-)2.8(-3.2) times as long as pygidial setae a_1.

Bothriotricha (Fig. 103). Relative lengths: T_1 = 100, T_2 = 137(-150), T_3 = (101-)103(-114), T_4 = 102(-121), T_5 = 172(-182). All with straight and very thin axis. Pubescence consisting of short, simple, oblique hairs on T_1, T_2, T_4 and T_5 but hairs of increasing length distally and there partly branched hairs on T_3.

Genital papillae (Fig. 104, paratype). Conical, narrowing in distal 2/3, 2.1 times as long as their greatest diameter, glabrous; distal seta long, thin, almost 0.6 of length of papilla.

Legs. Setae on coxa and trochanter of leg 9 cylindrical, striate, blunt; coxal seta (Fig. 105) simple, seta on trochanter (Fig. 106) furcate with secondary branch thin and 0.6 of length of primary branch. Corresponding setae on more anterior legs, (including

setae on coxa of leg 2 in male), simple, cylindrical, without rudiments of secondary branch. Tarsus of leg 9 (Fig. 107) tapering, 3.1(-3.5) times as long as its greatest diameter. Setae striate-annulate, proximal seta short, tapering, curved, (0.2-)0.3 of length of tarsus; distal seta cylindrical, striate, about as long as proximal seta. Cuticle of tarsus glabrous.

Pygidium (Fig. 108). *Tergum*. Posterior margin rounded. Relative lengths of setae: a_1 = 10, a_2 = (20-)22(-25), a_3 = 28(-33), *st* = (22-)27. Setae thin, striate, converging, a_1 short, straight, clavate, a_2, a_3 and *st* somewhat curved inwards, a_3 pointed. Distance $a_1 - a_1$ (3.0-)4.5 times as long as a_1, distance $a_1 - a_2$ about as long as distance $a_2 - a_3$; distance *st* – *st* 2.2(-3.1) times as long as *st* and (as long as –) 1.1 times as long as distance $a_1 - a_1$. Tergum glabrous.

Sternum. Posterior margin between b_1 almost straight apart from small lobe with shallow median incision just below anal plate. Relative lengths of setae (a_1=10): b_1 = 125(-134), b_2 = 48(-57). Setae tapering, striate, b_2 diverging, somewhat curved inwards. b_1 (1.3-)1.4(-1.5) times as long as interdistance; b_2 as long as (– 1.2 times as long as) distance $b_1 - b_2$.

Anal plate (Figs 108, 109) narrowest anteriorly, subcircular, lens-shaped, (1.0-)1.1 times as long as greatest breadth, directed backwards-upwards. Two posterior appendages protruding backwards from its posterosternal part; they are thin, straight, cylindrical, striate, 0.6 of length of plate. Plate and sternum glabrous.

18. ***Allopauropus (D.) bovistellus*** sp. n. Figs 110-118

Type material. **Holotype**: ad. 9(♂), GABON, Plateau Forestier d'Ipassa, primary forest, in soil, 1.VI.1966 (loc. IPA4/AVC3, leg. Barra).

Total number. 1 specimen.

Diagnosis. *A. (D.) bovistellus* sp. n. is unique in the odd shape of its antennal globuli, the shape of the genital papillae and in the short ring-shaped tibiae of legs 2-8 and the stalk of the apical organ of the tarsi.

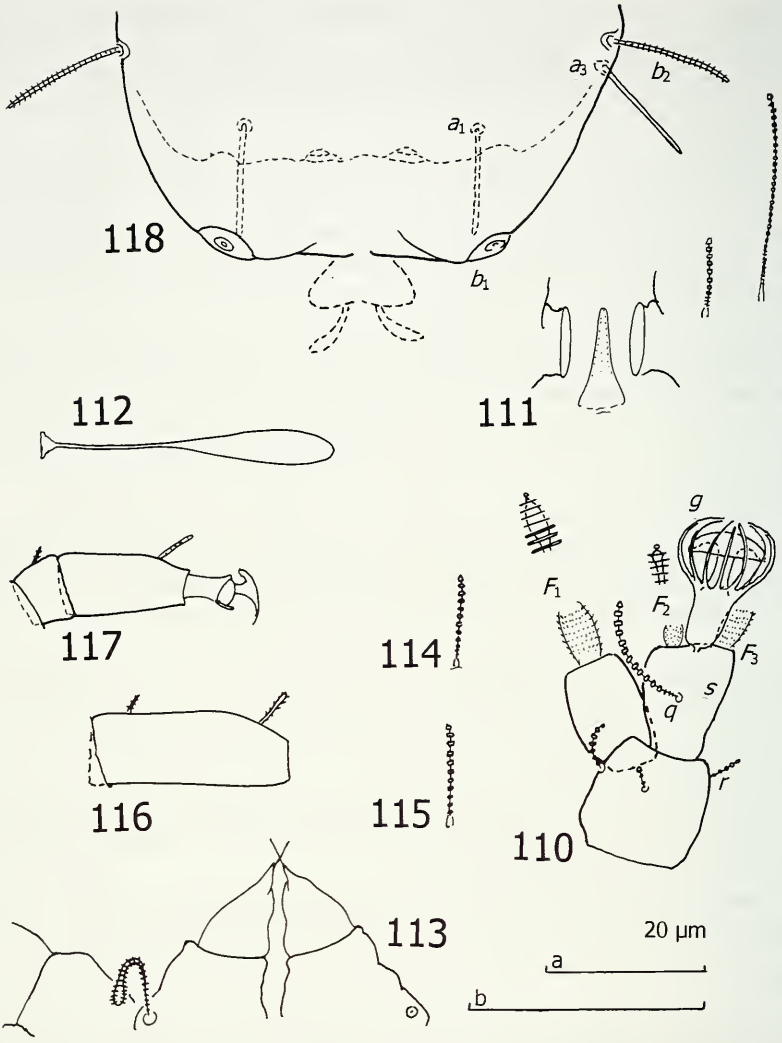
Etymology. From Greek bovista = puffball (referring to the shape of antennal globulus).

DESCRIPTION

Length. 0.77 mm.

Head. Only partly available for study. Tergal setae cylindrical, blunt, striate. Relative lengths of setae, 1st row: $a_1 = a_2$ = 10; 2nd row: a_1 = 9, a_2 = 15, a_3 = 7; 3rd row: a_1 and a_2 = ?; 4th row: a_1 = 7, a_2 = 15, a_3 = 12, a_4 = 20; lateral group: $l_1 = l_3$ = 20, l_2 = 19. Temporal organs have neither pistil nor posterior aperture.

Antennae (Fig. 110). Segment 4 with at least 3 short annulate setae, probably *p'*, *p"* and *r*. Their length 5, 2 and 3 μm respectively. Tergal branch almost cylindrical, 1.5 times as long as its greatest diameter and as long as sternal branch *s*, this 1.1 times as long as its greatest diameter and with its anterodistal corner somewhat truncate. Seta annulate, 1.1 times as long as length of *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 9; F_2 = 23, bs_2 = 4; F_3 = 70, bs_3 = 7. F_1 5.4 times as long as *t*, F_2 and F_3 1.3 and 3.8 times as long as *s*, respectively. Distal calyces with very small caps and distal part of flagella axes with fusiform widening in



FIGS 110-118

Allopauropus (D.) bovistellus sp. n., holotype, ad. 9(♂). 110, left antenna, sternal view; 111, collum segment, median and left part, sternal view; 112. T_3; 113, genital papillae and basal part of leg 2, anterior view; 114, seta on coxa of leg 9; 115, seta on trochanter of leg 9; 116, tarsus of leg 9; 117, tibia and tarsus of leg 8 with claw and empodium; 118, pygidium, sternal view. Scale a: Figs 114-117; b: Figs 110-113, 118.

F_1 and F_3, in the shape of an inverted cone in F_2. Globulus *g* 1.3 times as long as wide, in shape of a puffball with proximal half almost cylindrical; ≈ 17 very thin bracts; capsule fungiform; width of *g* 1.2 times as long as greatest diameter of *t*. Antennae glabrous except for basal segments of flagella, which have distinct pubescence arranged in whorls.

Trunk. Setae of collum segment (Fig. 111) simple, cylindrical, blunt, striate-annulate. Sublateral seta 2.6 times as long as submedian seta; sternite process narrow, without anterior incision; appendages short, wide, with flat caps. Process with minute pubescence.

Setae on tergites not studied.

Bothriotricha. Axes very thin except in T_3 (Fig. 112). The latter thin proximally but widens to a longish club, probably with distal thin lengthening.

Genital papillae (Fig. 113). Small, conical, pointed, protruding from large bases, these as long as papillae; seta 0.3 of length of papilla. "Coxal" seta of leg 2 inserted on lateral part of base of papilla. Seta cylindrical, with distinct end-swelling, striate.

Legs. Setae on coxa and trochanter of all legs simple, blunt, striate-annulate. Seta on coxa (Fig. 114) and trochanter (Fig. 115) of leg 9 cylindrical, annulate; coxal seta longest. Tarsus of leg 9 (Fig. 116) cylindrical, tapering in distal third, 2.8 times as long as its greatest diameter. Setae straight, short, proximal seta pointed, 0.1 of length of tarsus and 0.5 of length of cylindrical distal seta. Cuticle of tarsus glabrous. Tibiae of legs 2-8 short, annulate (Fig. 117). Claw and empodium on distinct stalk, in leg 8 0.3 of length of tarsus.

Pygidium (Fig. 118). *Tergum*. Posterior margin between a_2 almost straight. Relative lengths of setae: $a_1 = 10$, $a_2 = ?$, $a_3 = 11$, $st = ?$. a_1 and a_3 straight, cylindrical, almost glabrous, the latter diverging. a_2 lacking and *st* not identified, may be very short. Distance $a_1 - a_1$ twice longer than a_1, distance $a_1 - a_2$ considerably shorter than distance $a_2 - a_3$; distance $st - st$ 0.3 of distance $a_1 - a_1$.

Sternum. Posterior margin between b_1 straight, with small median V-shaped incision. Relative lengths of setae ($a_1 = 10$): $b_1 = ?$, $b_2 = 11$. b_2 cylindrical, blunt, striate, almost as long as distance $b_1 - b_2$.

Anal plate narrowest anteriorly, about as broad as long, posterior margin somewhat indented in the middle, posterolateral corners rounded; two diverging appendages protruding backwards from submedian part of posterior margin; appendages lanceolate, curved outwards, diverging, about as long as plate. Sternum glabrous.

Subgenus ***Perissopauropus*** Scheller, 1997

Key to the species of *Perissopauropus*

1 Stalk of antennal globulus *g* thick, subcylindrical; setae b_1 of pygidial sternum lanceolate . . . . . *tridens* Scheller
- Stalk of antennal globulus *g* thin, conical; setae b_1 of pygidial sternum thin, tapering 2
2 Antennal setae *u* well developed, cylindrical . . . . . *bounourei* Remy
- Antennal setae *u* rudimentary, conical 3
3 Pygidial setae a_1 and a_2 thin, tapering, pointed; pubescence on pygidial *st* long, decreasing in length outwards . . . . . *amphikomos* Scheller
4 Pygidial setae a_1 and a_2 thick, cylindrical, blunt; pubescence on pygidial *st* distinct but not long, and all of the same length . . . . . *lambdoides* sp. n.

19. ***Allopauropus (Perissopauropus) lambdoides*** sp. n. Figs 119-130

Type material. **Holotype**: ad. 9(♀), GABON, Plateau Forestier d'Ipassa, primary forest, at base of plant, 27.VI.1966 (loc. IPA9/AN6, leg. Barra). **Paratypes**: GABON, Edoungavion, under bark on soil, 2 ad. 9(♀), 21.II.1962 (loc. 5, leg. Condé). – Mbeza, secondary forest, near trail at old plantation, 1 subad. 8(♀), 1 juv. 6, 20.II.1962 (loc. 5, leg. Condé & Remy);

Other material. Plateau Forestier d'Ipassa, primary forest, at base of plant, 1 ad. 9(♀), 1 subad. 8(♀), 1 juv. 6, 27.VI.1966 (loc. IPA9/AN2, leg. Barra); ibidem, at base of fern, 1 juv. 6, 27.VI.1966 (loc. IPA9/AN3, leg. Barra). – Mbeza, secondary forest, near trail at old plantation, 1 subad. 8(♀), 20.II.1962 (loc. 5, leg. Condé & Remy). – Edoungavion, at road to Booué, 1 ad. 9(♂), 19.II.1962 (loc. 4, leg. Bernardi); ibidem, under bark, 1 subad. 8(♀), 1 juv. 6, 20.II.1962 (loc. 12, leg. Condé & Remy); ibidem, at foot of big tree, under bark on soil, 1 ad. 9(♀), 2.III.1962 (loc. 12bis, leg. Condé). – Mvadhi, end of trail to Dubost forest, under stones in laterite, 1 subad. 8(♀), 1 juv. 6, 9.IX.1962 (loc. 101, leg. Condé). – Mayiga, Endoumé, right side of road to Booué, at trail near small stream, 2 ad. 9(♀), 12.II.1962 (loc. 7, leg. Condé & Remy); ibidem, 1 juv. 5, 22.II.1962 (loc. 8, leg. Condé & Remy). – Belinga, under moss-covered stone, 1 ad. 9(♂), 17.III.1962 (loc. 35, leg. Condé & Bernardi).

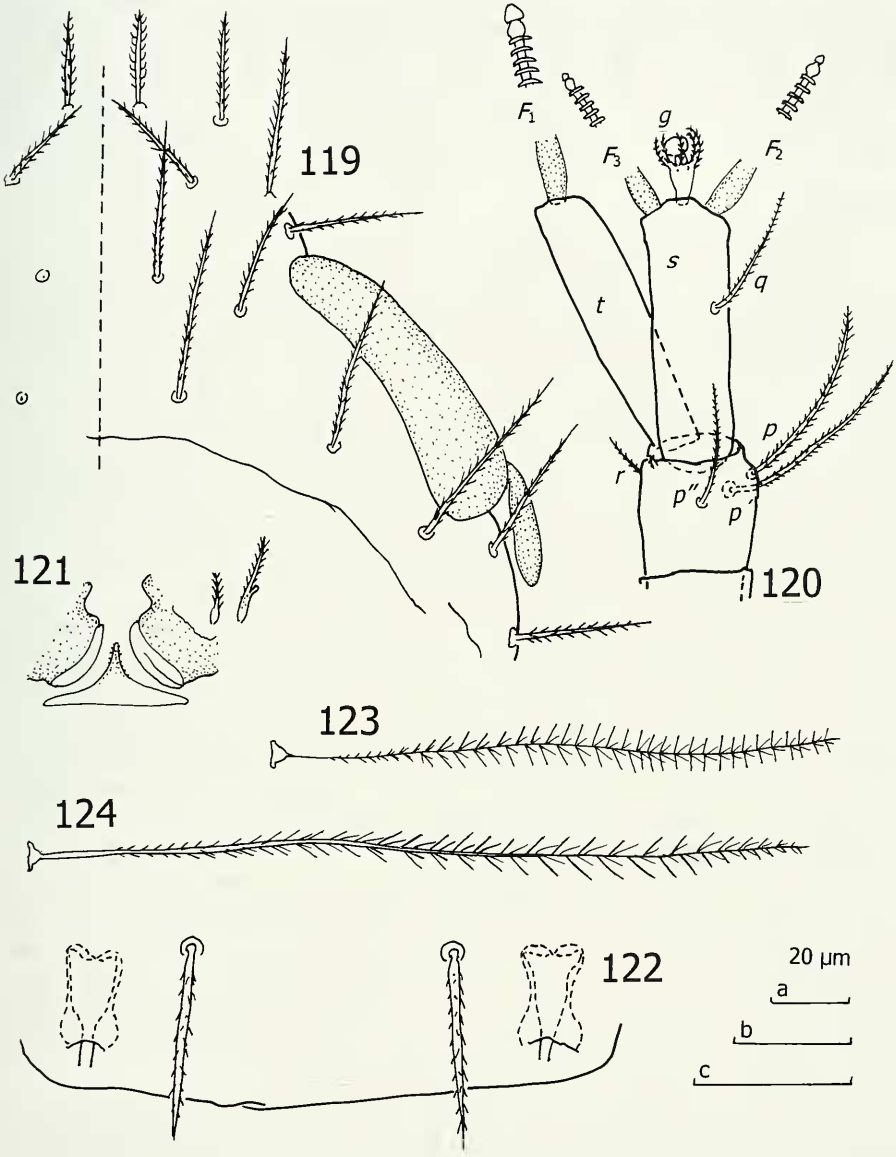
Total number. 20 specimens.

Diagnosis. Three species have been described in the subgenus *Perissopauropus*: *A. (P.) bounourei* Remy from Cameroon (Remy, 1955b), *A. (P.) tridens* Scheller from Angola (Scheller, 1975) and *A. (P.) amphikomos* Scheller from Central Amazonia (Scheller, 1997). They form, together with the species described below, a homogenous group which has many characters in common.

The new species is distinguished from *A. (P.) bounourei* by the shape of the antennal seta *u* (short and conical in *A. (P.) lambdoides* sp. n., longer and cylindrical in *A. (P.) bounourei*), the pygidial seta a_2 (thick, straight, blunt in *A. (P.) lambdoides* sp. n., thin, curved inwards, tapering, pointed in *A. (P.) bounourei*) and by the shape of the anal plate (branches slender and tergal appendages curved inwards in *A. (P.) lambdoides* sp. n., branches short and tergal appendages straight in *A. (P.) bounourei*).

A. (P.) lambdoides sp. n. is distinguished from *A. (P.) tridens* by the shape of the antennal globulus *g* [stalk thin in *A. (P.) lambdoides* sp. n., thick in *A. (P.) tridens*), the shape of the antennal setae and the pubescence of the antennae (setae pointed, antennal stalk, branches and globulus *g* almost glabrous in *A. (P.) lambdoides* sp. n., setae blunt, with distinct pubescence in *A. (P.) tridens*], by the pubescence on the bothriotrix T_5 [sparse and depressed hairs in *A. (P.) lambdoides* sp. n., dense and hairs oblique in *A. (P.) tridens*], by the shape of the *st* [curved inwards and converging in *A. (P.) lambdoides* sp. n., straight, directed backwards in *A. (P.) tridens*], by the pubescence on the pygidial setae a_3 and *st* [fairly dense pubescence of short hairs in *A. (P.) lambdoides* sp. n., a few long hairs in *A. (P.) tridens*], by the shape of the pygidial setae b_1 [curved, tapering, with distinct pubescence on one side only in *A. (P.) lambdoides* sp. n., straight, lanceolate, with very dense short pubescence on all sides in *A. (P.) tridens*] and by the shape of the appendages of the anal plate [distinctly tapering in *A. (P.) lambdoides* sp. n., subcylindrical and blunt in *A. (P.) tridens*].

A. (P.) lambdoides sp. n. is distinguished from *A. (P.) amphikomos* by: the length proportion *p/p'* [1.2 in *A. (P.) lambdoides* sp. n., 1.5 in *A. (P.) amphikomos*], the occurrence of seta *p*''' [rudimentary knob in *A. (P.) lambdoides* sp. n., not visible in *A. (P.) amphikomos*], the shape of the antennal globulus *g* [distinct stalk in *A. (P.) lambdoides* sp. n., very short stalk in *A. (P.) amphikomos*], the shape of the seta *r* on the 4th antennal segment [pointed in *A. (P.) lambdoides* sp. n., blunt and distal part annulate in



FIGS 119-124

Allopauropus (Perissopauropus) lambdoides sp. n., holotype, ad. 9(♀). 119, head, median and right part, tergal view; 120, right antenna, sternal view; 121, collum segment, median and left part, sternal view; 122, tergite VI, posterior part; 123, T_1; 124, T_3. Scale a: Figs 121, 123-124; b: Fig. 122; c: Figs 119-120.

A. (P.) amphikomos], the shape of the setae on the pygidial tergum [a_1 and a_2 straight, cylindrical, blunt in *A. (P.) lambdoides* sp. n., curved inwards, tapering in *A. (P.) amphikomos*], the *st* [curved, pubescence hairs of about the same length in *A. (P.) lamb-*

doides sp. n., almost straight, pubescence hairs decrease in length outwards in *A. (P.) amphikomos*], and the length of the submedian appendages of the anal plate [<0.5 of length of plate in *A. (P.) lambdoides* sp. n., >0.5 of length of plate in *A. (P.) amphikomos*].

Etymology. From the Greek letter lambda (referring to the shape of the anal plate).

DESCRIPTION

Length. (0.77-)0.97(-1.02) mm.

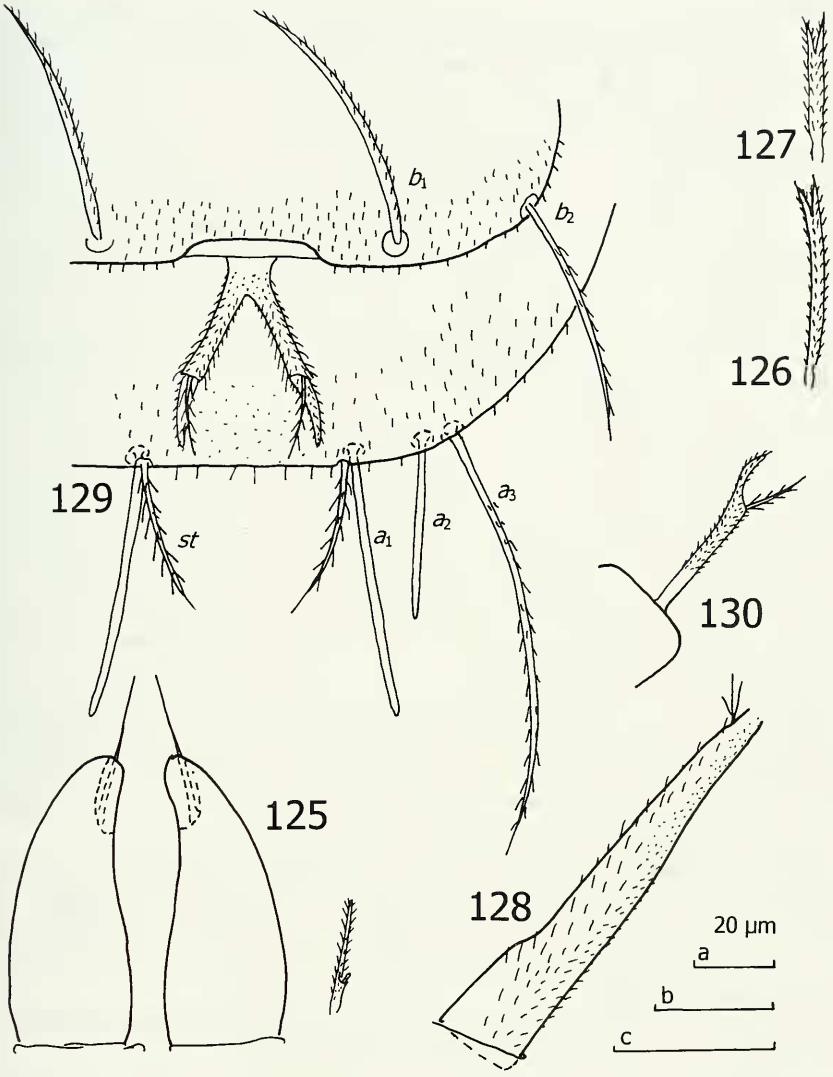
Head (Fig. 119). Tergal and lateral setae long, tapering, all terminated by a thin straight hair and covered with a very distinct pubescence of somewhat curved oblique hairs. Relative lengths of setae, 1st row: a_1 = 10, a_2 = (10-)11; 2nd row: a_1 = (10-)12, a_2 = (13-)15, a_3 = (12-)13; 3rd row: a_1 = (12-)15, a_2 = (10-)12(-13); 4th row: a_1 = (13-)19, a_2 = (15-)19, a_3 = (18-)20(-25), a_4 = (12-)15(-16); lateral group: l_1 = 15(-16), l_2 = (10-)12, l_3 = (15-)19. Ratio $a_1/a_1 - a_1$ in 1st row 1.4, 2nd row (0.5-)0.6, 3rd row 1.3 and 4th row (0.9-)1.2(-1.3). Length of temporal organs 0.9 of their shortest interdistance. No interior pistil present but a clavate vesicular appendage projecting backwards from a point somewhat anterior to posterior margin, length of appendage 0.4 of length of temporal organ. Posterior aperture not ascertained. Head cuticle glabrous, temporal organs with vesicle possessing sparse minute pubescence.

Antennae (Fig. 120). Segment 4 with 5 distal setae, these tapering, pointed, from base and outwards pubescent-striate-annulate, *r* thinnest. Relative lengths of setae: *p* = 100, *p'* = 83(-84), *p"* = (37-)53, *r* = (22-)23, *u* = (3-)5. Tergal seta *p* 0.9(-1.1) times as long as tergal branch *t*. The latter slender, cylindrical, distally obliquely truncate, (4.0-)4.4(-4.9) times as long as its greatest diameter and as long as sternal branch *s*, this subcylindrical, 3.0(-4.1) times as long as its greatest diameter and with its anterodistal and posterodistal corners equally truncate. Seta *q* similar to *p"*, 0.5(-0.6) of length of *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = (8-)10; F_2 =74(-78), bs_2 = (7-)9; F_3 = 69(-71), bs_3 = 7. F_1 2.3 times as long as *t*, F_2 and F_3 1.6(-1.7) and 1.5(-1.7) times as long as *s*, respectively. Distal calyces of F_2 and F_3 very small; distal part of flagella axes with a distinct subglobular swelling just below calyx. Globulus *g* pyriform, (1.6-)1.7(-1.8) times as long as wide; 12 bracts present; width of *g* (0.7-)0.8 of greatest diameter of *t*. Antennae glabrous except for bracts of globuli, these with a very distinct pubescence, and the base segments of the flagella, which have a minute pubescence.

Trunk. Setae of collum segment (Fig. 121) furcate, main branch tapering, pointed, with oblique pubescence; secondary branch rudimentary, cylindrical, blunt, glabrous. Sternite process broad, pointed anteriorly. Appendages wide, with flat caps. Sparse short pubescence on anterior part of process and appendages.

Setae on tergites as on tergal side of head, somewhat increasing in length posteriorly. 4+4 setae on tergite I, 6+6 on II-IV, 6+4 on V, 4+2 on VI. Posterior setae on tergite VI (Fig. 122) 1.2 times as long as interdistance and somewhat longer than length of pygidial setae a_1.

Bothriotricha (Figs 123, 124). Relative lengths: T_1 = 100, T_2 = 107(-113), T_3 = 117(-137), T_4 = (169-)197, T_5 = (206-)210(-253). All with simple straight axes;



FIGS 125-130

Allopauropus (Perissopauropus) lambdoides sp. n., 126-130, holotype, ad. 9(♀), 125, paratype, ad. 9(♂). 125, genital papillae and seta on coxa of leg 2, anterior view; 126, seta on coxa of leg 9; 127, seta on trochanter of leg 9; 128, tarsus of leg 9; 129, pygidium, sternal view; 130, anal plate, lateral view. Scale a: Fig. 128; b: Figs 125-127; c: Figs 129-130.

pubescence hairs strong, straight, simple, strongest on T_3 and T_5, erect on distal half of T_1 and T_2, otherwise oblique.

Genital papillae (Fig. 125, paratype). Conical, 2.4 times as long as their greatest diameter, glabrous, distinctly narrowing and curved inwards in distal half; seta 0.5 of length of papilla.

Legs. Setae on coxa (Fig. 126) and trochanter (Fig. 127) of leg 9 simple, subcylindrical, cleft distally, with distinct oblique pubescence, seta on trochanter 1.4 times as long as coxal seta and also more slender than seta on coxa. More anterior setae simple, not cleft distally and without rudiments of secondary branches except on coxal seta on leg 2 in males, this with a cylindrical, blunt, glabrous, rudimentary, secondary branch. Tarsus of leg 9 (Fig. 128) slender, straight, tapering, 5.6(-6.8) times as long as greatest diameter. Setae on tarsus very dissimilar: proximal seta straight, tapering, pointed, with long distal hair and a few long depressed more proximal hairs, seta (0.3-)0.4 of length of tarsus and 3.9(-4.7) times as long as distal seta; the latter short, 0.1 of length of tarsus, fork-shaped as a trident with straight spinous prongs, the middle one longest. Pubescence coarse, arranged in rows lengthways, hairs on tergal side long and somewhat increasing in length toward proximal end, there glabrous between proximal seta and the upper end of tarsus. Pubescence on lateral and sternal sides shorter and denser but distinct.

Pygidium (Fig. 129). *Tergum*. Posterior margin straight, with evenly rounded corners. Relative lengths of setae: a_1 = 100, a_2 = (51-)71, a_3 = (104-)147, *st* = (43-)59. Setae of two types: a_1 and a_2 thick, straight, cylindrical, blunt, glabrous; a_3 and *st* tapering, pointed, filiform distally, curved inwards and with distinct oblique pubescence, strongest on *st*. Distance $a_1 - a_1$ (0.5-)0.8 of length of a_1, distance $a_1 - a_2$ (1.4-)2.5 times as long as distance $a_2 - a_3$; distance *st* – *st* 1.2(-1.3) times as long as *st* and about as long as distance $a_1 - a_1$. Cuticle of tergum sparsely covered with long spinous pubescence most posteriorly.

Sternum. Posterior margin between b_1 straight apart from shallow indentation just below anal plate. Relative lengths of setae (a_1=100): b_1 = (82-)94(-130), b_2 = (46-)62(-66). b_1 tapering, glabrous on one side, pubescence increasing in length distally; b_2 curved inwards, diverging, with long distal hair. b_1 0.9 of (– as long as) interdistance, b_2 1.2(-1.3) times as long as distance $b_1 - b_2$.

Anal plate (Figs 129, 130) Y-shaped, with its prongs 1.7 times as long as their common base; distal part of each prong terminated by a tapering blunt extension, 0.7 of length of prong; on sternal side of each extension a spine very similar to *st* but smaller. Plate and appendages with distinct oblique pubescence; cuticle of sternum with long sparse pubescence.

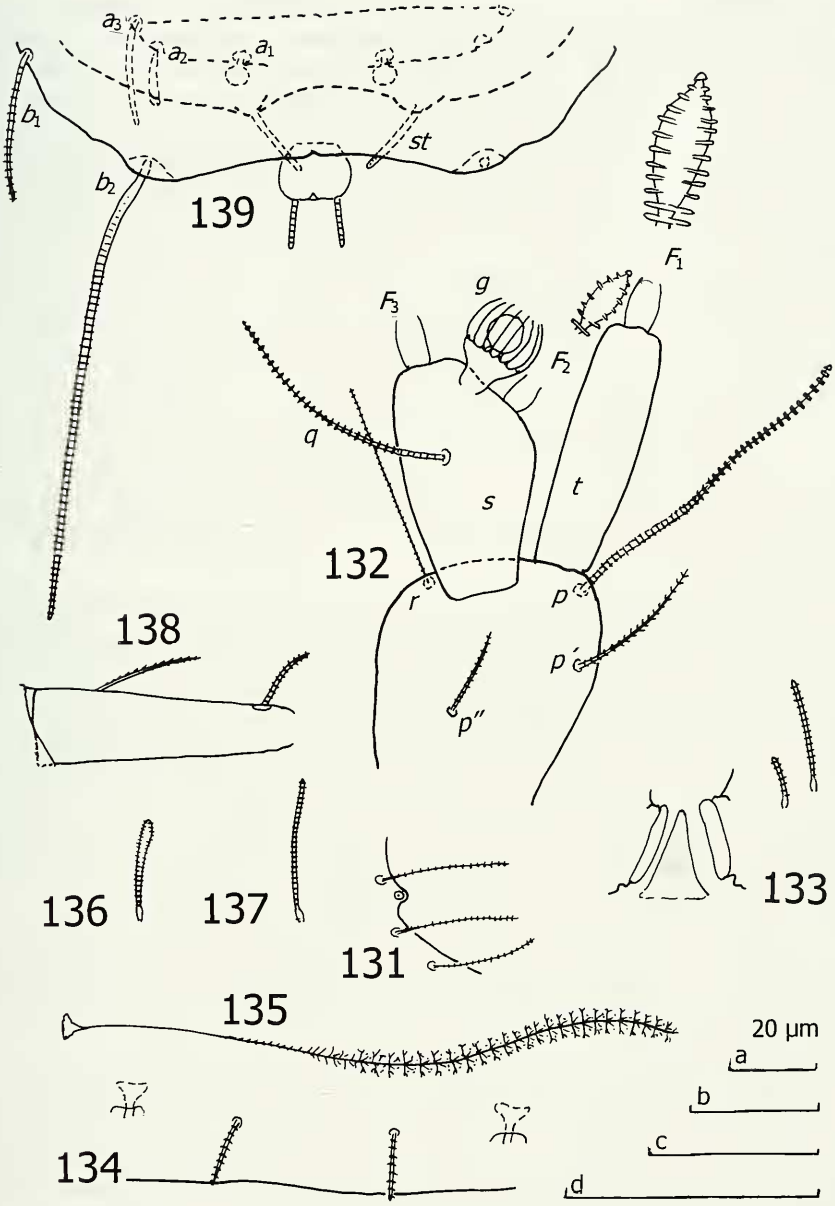
Stage subad. 8. Setae d_1 and d_2 tapering, pointed, with oblique pubescence; d_1 1.4 times as long as distance $d_1 - d_1$ and twice longer than d_2.

Genus ***Cauvetauropus*** Remy, 1952b
Subgenus ***Nesopauropus*** Scheller, 1997

20. ***Cauvetauropus (N.) pistillifer*** sp. n. Figs 131-139

Type material. **Holotype**: ad. 9(♀), GABON, Plateau Forestier d'Ipassa, primary forest, in soil, 20.V.1966 (loc. IPA3/b4, leg. Barra).
Total number. 1 specimen.

Diagnosis. *C.(N.) pistillifer* sp. n. may be closest to *C. (N.) subtilis* Scheller from Sri Lanka (Scheller, 1970). They are very alike as to the general shape of the antennae and the bothriotricha, but can be easily distinguished by: the shape of the



FIGS 131-139

Cauvetauropus (N.) pistillifer sp. n., holotype, ad. 9(♀). 131, posterior part of temporal organ with aperture and lateral group of setae; 132, right antenna, sternal view; 133, collum segment, median and left part, sternal view; 134, tergite VI, posterior part; 135, T_3; 136, seta on coxa of leg 9; 137, seta on trochanter of leg 9; 138, tarsus of leg 9; 139, pygidium, sternal view. Scale a: Fig. 133; b: Figs 131, 132, 134-138; c: Fig. 139.

tergal antennal branch [3.3 times as long as its greatest width in *C. (N.) pistillifer* sp. n., 2.1 in *C. (N.) subtilis*], the shape of the setae on coxa and trochanter of leg 9 [simple in *C. (N.) pistillifer* sp. n., furcate in *C. (N.) subtilis*], the shape of the setae on the tarsus of leg 9 [proximal seta pointed, 0.4 of the length of the tarsus in *C. (N.) pistillifer* sp. n., blunt, 0.5 of the length of the tarsus in *C. (N.) subtilis*], the shape of the setae a_1 of the pygidial tergum [short, bladder-shaped in *C. (N.) pistillifer* sp. n., long, cylindrical in *C. (N.) subtilis*], and the shape of the anal plate [subcircular with long appendages in *C. (N.) pistillifer* sp. n., subrectangular with short appendages in *C. (N.) subtilis* Scheller].

Etymology. From Latin pistillum = club-shaped pounder and ferre = carry (referring to the setae a_1 of pygidial tergum).

DESCRIPTION

Length. 0.85 mm.

Head. Only partly available for study. Tergal setae cylindrical, blunt, striate. Relative lengths of setae, 1st row: $a_1 = a_2 = 10$; 2nd row: $a_1 = 9$, $a_2 = 15$, $a_3 = 7$; 3rd row: a_1 and a_2 = ?; 4th row: $a_1 = 7$, $a_2 = 15$, $a_3 = 12$, $a_4 = 20$; lateral group: $l_1 = l_3 = 20$, $l_2 = 19$. No pistil; posterior aperture (Fig. 131) close to posterior margin of temporal organ at level of l_1 and l_2.

Antennae (Fig. 132). Segment 4 with 4 thin, cylindrical, striate-annulate setae, *p"* and *r* very thin. Relative lengths of setae: $p = 100$, $p' = 35$, $p'' = 27$, $r = 61$. Tergal seta *p* 1.3 times as long as tergal branch *t*. The latter subcylindrical, 3.3 times as long as its greatest diameter and 1.3 times as long as sternal branch *s*, this1.4 times as long as its greatest diameter and with its anterodistal corner distinctly truncate. Seta *q* similar to *p*, 1.4 times as long as length of *s*. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100$, $bs_1 = 4$; $F_2 = 28$, $bs_2 = 3$; $F_3 = 81$, $bs_3 = 4$. F_1 5.2 times as long as *t*, F_2 and F_3 1.9 and 5.7 times as long as *s*, respectively. Distal calyces with very small caps and distal part of flagella axes strongly widened, almost ovoid and with many discs. Globulus *g* 1.3 times as long as wide; 17 bracts present; width of *g* as long as greatest diameter of *t*. Antennae glabrous.

Trunk. Setae of collum segment (Fig. 133) simple, cylindrical, blunt, striate. Sublateral seta 2.2 times as long as submedian seta; sternite process narrow, triangular, without anterior incision; appendages short, wide, caps flat. Process with minute pubescence in anterior half.

Setae on tergites cylindrical, blunt, striate. 4+2 setae on tergite VI (Fig. 134); posterior setae there 0.4 of interdistance and 3.7 times as long as pygidial setae a_1.

Bothriotricha (Fig. 135). Axes very thin and simple. T_1 and T_2 not studied. Lengths of other trichobothria: $T_3 = 98$, $T_4 = 70$ and $T_5 = 135$ μm. Pubescence on all except T_3 very short, erect distally; T_3 with short simple oblique hairs in proximal half, these longer towards distal part, there also arranged in whorls and branched.

Legs. Setae on coxa and trochanter of all legs simple, blunt, striate. Seta on coxa of leg 9 (Fig. 136) somewhat clavate and 0.7 of length of cylindrical seta on trochanter (Fig. 137). Tarsus of leg 9 (Fig. 138) tapering, 3.1 times as long as its greatest diameter. Setae pointed, proximal seta long, somewhat curved, with short oblique pubescence, 0.4 of length of tarsus and 1.5 times as long as distal striate seta. Cuticle of tarsus glabrous.

Pygidium (Fig. 139). *Tergum*. Posterior margin rounded, with shallow indentation between *st*. Relative lengths of setae: $a_1 = 10$, $a_2 = 23$, $a_3 = 40$, $st = 33$. a_1 short, subglobular, a_2 somewhat clavate, a_3 and *st* subcylindrical, blunt; a_2 and a_3 somewhat curved inwards, *st* converging. Distance $a_1 - a_1$ 5.7 times as long as a_1, distance $a_1 - a_2$ 2.5 times as long as distance $a_2 - a_3$; distance *st* – *st* 2.5 times as long as *st* and 1.5 times as long as distance $a_1 - a_1$. Tergum glabrous.

Sternum. Posterior margin between b_1 with broad shallow indentation. Relative lengths of setae ($a_1 = 10$): $b_1 = 190$, $b_2 = 62$. b_1 and b_2 tapering distally, pointed, striate, the latter curved inwards. b_1 1.4 times as long as interdistance; b_2 about as long as distance $b_1 - b_2$.

Anal plate narrowest anteriorly, short, 1.3 times as broad as long, linguiform, lateral margins convex, posterior margin with shallow sternal incision; each posterior lobe with a cylindrical, blunt, shortly striate and posteriorly directed appendage, 0.9 of length of plate. Sternum with anal plate glabrous.

Genus ***Hemipauropus*** Silvestri, 1902.
Subgenus ***Hemipauropus*** s. str.

21. ***Hemipauropus (H.) elongatus*** sp. n. Figs 140-151

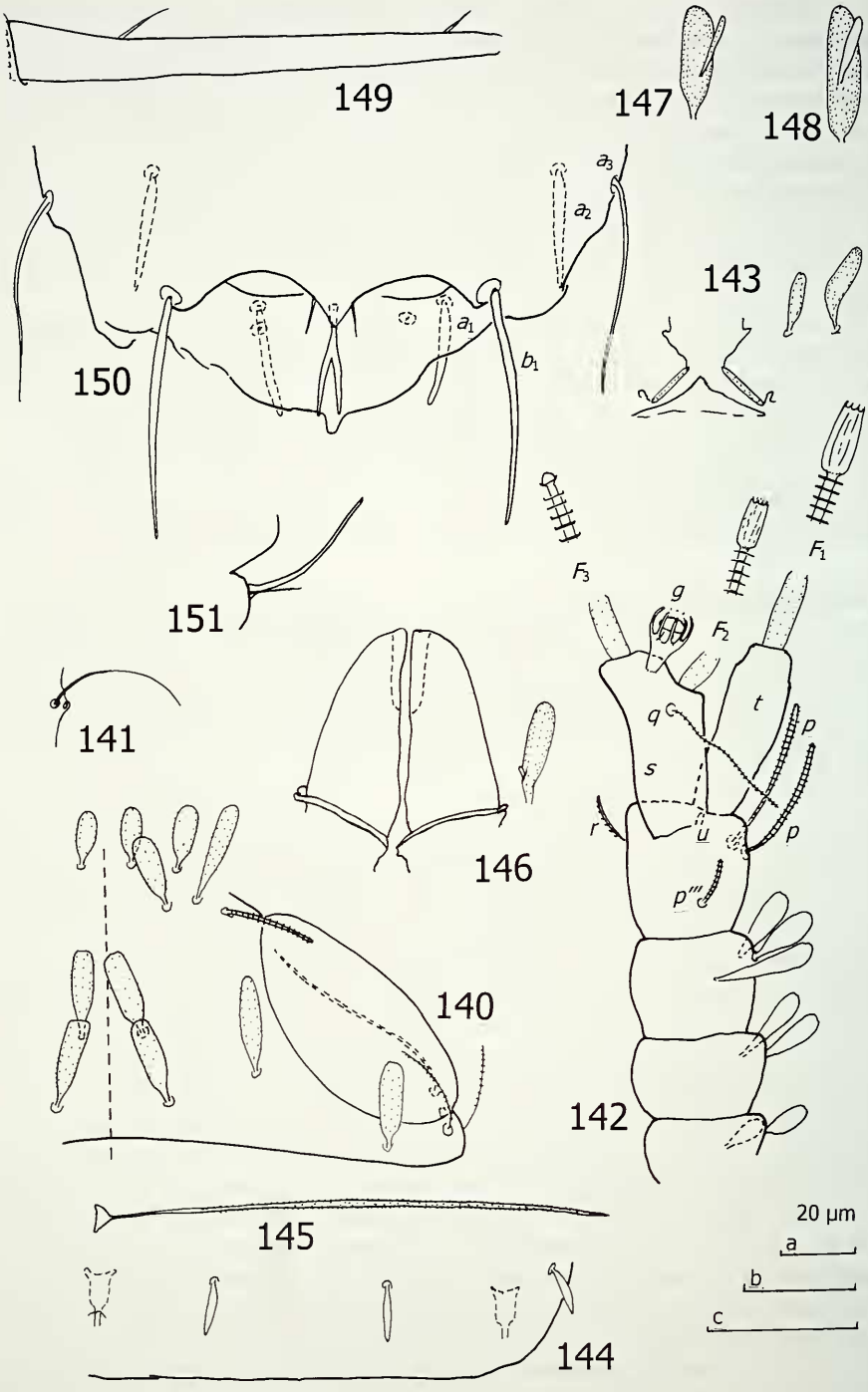
Type material. **Holotype**: ad. 9(♂), Gabon, Plateau Forestier d'Ipassa, primary forest, in soil, 7.VI.1966 (loc. IPA5/E5, leg. Barra). **Paratype**: ibidem, 1 ad. 9(♂), 7.VI.1966 (loc. IPA5/E16, leg. Barra).

Other material. Plateau Forestier d'Ipassa, primary forest, in soil, 1 juv. 6, 7.VI.1966 (loc. IPA5/E17, leg. Barra). – Edoungavion, under bark on soil, 1 ad. 9(♂), 21.II.1962 (loc. 12, leg. Condé & Remy).

Total number. 3 specimens.

Diagnosis. *Hemipauropus (H.) elongatus* sp. n. is well delimited from the other species of the genus by the very long and slender tarsi of the last pair of legs and the very thin setae a_3 on the pygidial tergum. It may be closest to *H. (H.) angolanus* Remy from Angola (Remy, 1955a) and *H. (H.) obrei* Remy from Mauritius (Remy, 1959b). Good distinctive characters in relation to *H. (H.) angolanus* are the length of the antennal setae *p* and *p'* [*p*>*p'* in *H. (H.) elongatus* sp. n., *p*<*p'* in *H. (H.) angolanus*], the shape of the seta *p* [somewhat clavate distally and striate in *H. (H.) elongatus* sp. n., foliform or bladder-shaped in *H. (H.) angolanus*], the shape of the apical organ of the antennal flagella F_2 [long and subcylindrical in *H. (H.) elongatus* sp. n., short and conical in *H. (H.) angolanus*] and the shape of the setae a_3 of the pygidial tergum [very thin distally in *H. (H.) elongatus* sp. n., tapering and blunt in *H. (H.) angolanus* Remy]. The new species is distinguished from *H. (H.) obrei* as follows: the antennal globulus *g* is short-stalked and 1.4-1.5 times as long as its greatest diameter in *H. (H.) elongatus* sp. n., long-stalked and 2.5 times as long as its greatest diameter in *H. (H.) obrei*; the apical organ of the antennal flagella F_1 and F_2 are cylindrical in *H. (H.) elongatus* sp. n., subovoid in *H. (H.) obrei* and the anal plate is more slender, 4.5 times as broad as long in *H. (H.) elongatus* sp. n., 2.5 times in *H. (H.) obrei*.

Hemipauropus (H.) elongatus sp. n. has also similarities with *H. (H.) leonensis* Scheller from Sierra Leone (Scheller, 1995) but that species has a much shorter and


149
147
148
150
a_3
a_2
a_1
b_1
143
151
F_3
F_1
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141
146
140
142
145
144
20 µm
a
b
c

proportionally wider stalk of the antennal globulus *g*, proportionally shorter seta *q* and tarsi, and the seta a_3 on the pygidial tergum is thicker and has a distal hair.

Etymology. From Latin elongatus = prolonged (referring to the tarsi).

DESCRIPTION

Length. 0.62(-0.69) mm.

Head, holotype only (Fig. 140). Tergal setae of 1st row and a_1 in 2nd row of medium length, other tergal and lateral setae fairly long; main part of them leaf-shaped, glabrous or with very minute pubescence; a_3 in 2nd and 4th rows thin, striate, the former cylindrical, blunt, and the latter tapering, pointed. Relative lengths of setae, 1st row: $a_1 = 10, a_2 = 11$; 2nd row: $a_1 = 13, a_2 = 18, a_3 = 16$; 3rd row: $a_1 = 16, a_2 = 17$; 4th row: $a_1 = 16, a_2 = 15, a_3 = 21, a_4 = ?$; lateral group: $l_1 = 16, l_2 = 20, l_3 = 40$. Ratio $a_1/a_1 - a_1$ in 1st row 1.1, 2nd row 0.6, 3rd row 1.6 and 4th row 0.8. Length of temporal organs about as long as shortest interdistance. No pistil but very small aperture at posterior margin of temporal organs (Fig. 141). Head cuticle glabrous.

Antennae (Fig. 142). Segment 4 with 5 cylindrical, blunt, striate setae, *p* somewhat widened distally. Relative lengths of setae: $p = 100, p' = 85(90), p'' = 35(40), r = 35(39), u = 5$. Tergal seta *p* 0.9 of length of tergal branch *t*. The latter fusiform, 2.9(3.1) times as long as greatest diameter and (0.8)0.9 of length of sternal branch *s*, this 2.3(2.4) times as long as greatest diameter and with anterodistal corner distinctly truncate. Seta *q* thinner than *p* and *p'*, cylindrical, blunt, striate, (0.7)0.8 of length of *s*. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100$, $bs_1 = (14)16$; $F_2 = (54)60$, $bs_2 = (11)13$; $F_3 = (94)95$, $bs_3 = (13)14$. F_2 and F_3 thinner than F_1. F_1 2.7(3.0) times as long as *t*, F_2 and F_3 (1.4)1.5 and 2.4 times as long as *s*, respectively. Distal organs of F_1 and F_2 subcylindrical, 2.5 times as long as greatest diameter and consisting of slightly curved and flattened bracts around a sessile ovoid capsule; distal organ of F_1 almost twice longer and also thicker than that of F_2; those of F_2 small and subhemispherical, without surrounding bracts. Globulus *g* 1.5 times as long as wide, with thin stalk; 10 bracts present; width of *g* 0.8 of greatest diameter of *t*. Antennae glabrous except for basal segments of flagella, these with a minute pubescence.

Trunk. Setae of collum segment (Fig. 143) furcate, main branch leaf-shaped, broadest in the middle, with minute pubescence; secondary branch rudimentary, cylindrical; these setae 4 times longer than their greatest diameter; sublateral seta 1.7 times as long as submedian seta; sternite process short, broad, triangular, not cleft distally, glabrous; appendages cylindrical with wide and flat caps, the latter minutely pubescent.

FIGS 140-151

Hemipauropus (H.) elongatus sp. n., holotype, ad. 9(♂). 140, head, median and right part, tergal view; 141, part of temporal organ and lateral group seta l_2; 142, right antenna, sternal view; 143, collum segment, median and left part, sternal view; 144, tergite VI, posterior part; 145, T_3; 146, genital papillae and seta on coxa of leg 2, anterior view; 147, seta on coxa of leg 9; 148, seta on trochanter of leg 9; 149, tarsus of leg 9; 150, pygidium, sternal view; 151, anal plate, lateral view. Scale a: Fig. 143; b: Figs 140-141, 144-149; c: Fig. 142; d: Figs 150-151.

Setae on tergite I as submedian setae on head, narrower more posteriorly. Anterior tergites transversely divided, I and II distinctly so, III incompletely so; 4+4 setae on I, 6+6 on II-V and a single row of 4 setae on VI (Fig. 144). Reticular cuticle pattern very weak, visible on tergites III-VI only.

Bothriotricha (Fig. 145). Relative lengths (holotype only): $T_1 = 100$, $T_2 = 78$, $T_3 = 97$, $T_4 = ?$, $T_5 = 174$. All with very thin axes and minute pubescence; axes of T_3 thickest.

Genital papillae (Fig. 146). Basal segments short but well developed, with narrow collar. Papillae twice longer than greatest diameter, slowly tapering distally, inner side almost straight, outer side strongly curved in distal third. Distal seta very short and thin. Setae on coxa of leg 2 not deviating from other coxal setae of anterior legs.

Legs. Setae on coxa (Fig. 147) and trochanter (Fig. 148) of leg 9 furcate; primary branch leaf-shaped, with subparallell lateral margins, 3.7 times as long as greatest width; secondary branch clavate, much shorter and thinner, about 0.6 of length of main branch. Both branches minutely pubescent. Corresponding setae more anteriorly with rudimentary secondary branches.

Tarsus of leg 9 (Fig. 149) long, tapering, very slender, (6.7)8.0 times as long as greatest diameter. Both setae tapering, pointed, almost glabrous; proximal seta 0.1(0.2) of length of tarsus and 1.3(1.9) times as long as distal seta. Cuticle of tarsus almost glabrous.

Pygidium (Fig. 150). *Tergum*. Posterior margin with rounded median bulge carrying small but distinct posteromedian extension. Relative lengths of setae: $a_1 = 100$, $a_2 = 110$, $a_3 = (189)194$, $st = ?$. Setae glabrous, a_1 and a_2 lanceolate, broadest in proximal third, a_3 thin, tapering, pointed, a_1 and a_3 curved inwards. *st* very small or lacking. Distance $a_1 - a_1$ 1.3(1.9) times as long as a_1, distance $a_1 - a_2$ twice longer than distance $a_2 - a_3$; distance $st - st$ 0.8 of distance $a_1 - a_1$.

Sternum. Margin between b_1 with a broad median pointed triangular lobe projecting backwards below anal plate. Relative lengths of setae ($a_1 = 100$): $b_1 = 210(260)$. Neither b_2 nor b_3 present. b_1 proportionately short, 0.7 of interdistance, tapering, glabrous, somewhat curved inwards.

Anal plate (Figs 150, 151) glabrous, with broad base with two thin, almost straight posterolateral spines and a posteromedian, unusually thin, forked appendage, 3 times longer than breadth of plate at base.

22. ***Hemipauropus (H.) bilobatus*** sp. n. Figs 152-160

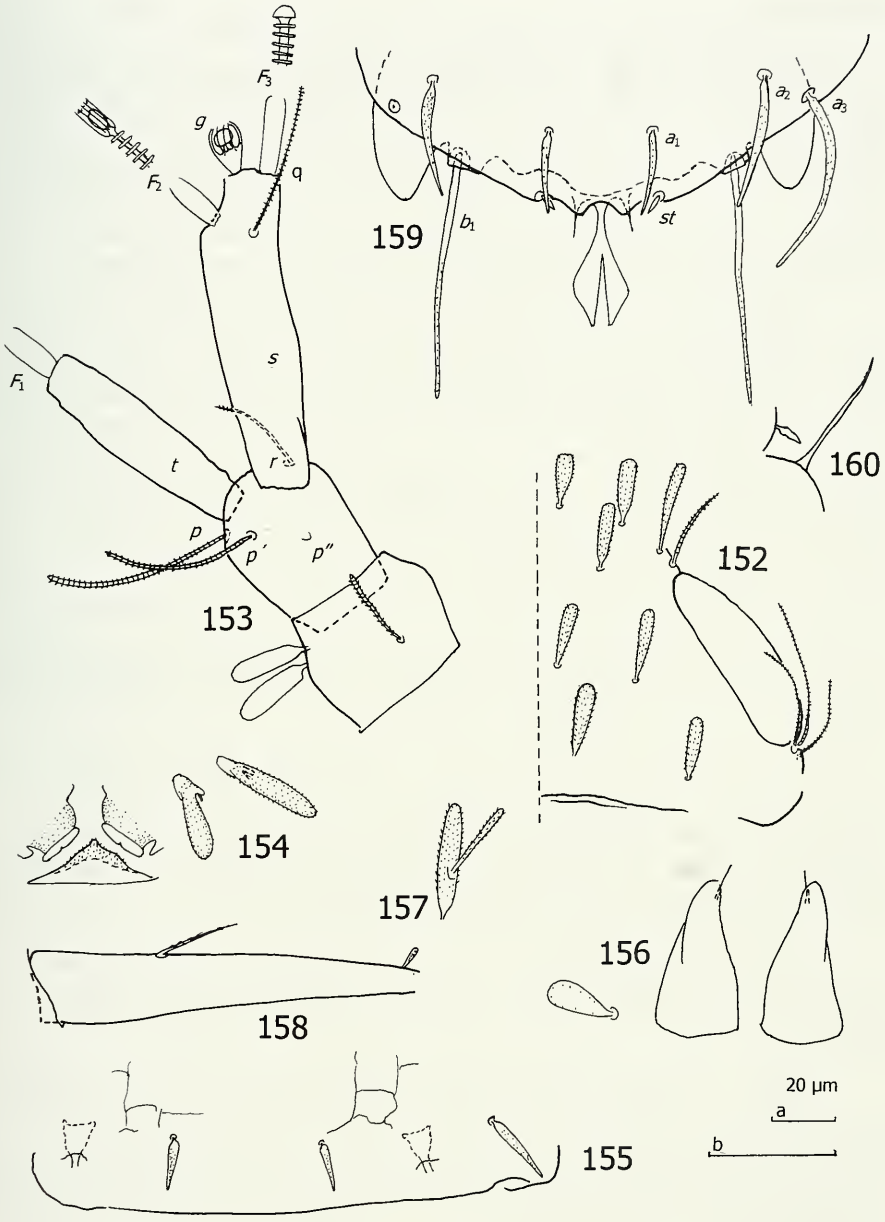
Type material. **Holotype**: ad. 9(♀), GABON, Edoungavion, beginning of trail to Alarmintang, near small stream, under wood, 2.III.1962 (loc. 15, leg. Condé). **Paratypes**: same data as for holotype, 2 ad. 9(♂ ♀).

Other material. Edoungavion, under bark on soil, 3 ad. 9(2♀,1sex ?), 2.III.1962 (loc. 15bis, leg. Condé & Remy).

Total number. 6 specimens.

Diagnosis. The large posterolateral lobes on the pygidial sternum have not been found in other species of the genus.

Etymology. From Latin bis = two and lobus = rounded projection (referring to the posterior part of the pygidial sternum).



FIGS 152-160

Hemipauropus (H.) bilobatus sp. n., 152-155, 157-160, holotype, ad. 9(♀), 156 paratype, ad. 9(♂). 152, head, median and right part, tergal view; 153, left antenna, sternal view; 154, collum segment, median and left part, sternal view; 155, tergite VI, posterior part; 156, genital papillae and seta on coxa of leg 2, anterior view; 157, seta on trochanter of leg 9; 158, tarsus of leg 9; 159, pygidium, tergal view; 160, anal plate, lateral view. Scale a: Figs 152, 154-158; b: Figs 153, 159-160.

DESCRIPTION

Length. (0.98-)1.20(-1.21) mm.

Head, holotype only (Fig. 152). Tergal setae fairly long; main part of them leaf-shaped, with short dense pubescence; a_3 in 2nd and 4th rows thin, pointed, striate. Relative lengths of setae, 1st row: $a_1 = 10$, $a_2 = 12\text{-}13$; 2nd row: $a_1 = 13$, $a_2 = 18\text{-}19$, $a_3 = 18$; 3rd row: $a_1 = 13$, $a_2 = 14$; 4th row: $a_1 = 15$, $a_2 = 13$, $a_3 = ?$, $a_4 = ?$; lateral group: $l_1 = 22$, $l_2 = 30$, $l_3 = 21$. Ratio $a_1/a_1 - a_1$ in 1st row 1.2, 2nd row 0.5, 3rd row 1.6 and 4th row 1.0. Length of temporal organs 0.8 of shortest interdistance. No pistil but very small aperture at posterior margin of temporal organ. Head cuticle glabrous.

Antennae (Fig. 153). Segment 4 with 3 striate setae, *p* and *p'* cylindrical, blunt, *r* subcylindrical, tapering, pointed, *p"* a rudimentary knob only. Relative lengths of setae: $p = 100$, $p' = (85\text{-})87$, $r = (46\text{-})51$. Tergal seta *p* (0.8-)0.9 of length of tergal branch *t*. The latter fusiform, 3.9(-4.6) times as long as greatest diameter and 0.7(-0.8) of length of sternal branch *s*, this (3.5-)4.2 times as long as greatest diameter and with anterodistal corner distinctly truncate. Seta *q* thinner than *p* and *p'*, subcylindrical, tapering, striate, 0.5(-0.6) of length of *s*. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100$, $bs_1 = 10(\text{-}11)$; $F_2 = (52\text{-})54(\text{-}55)$, $bs_2 = 10$; $F_3 = (96\text{-})112$, $bs_3 = (12\text{-})14$. F_1 2.4 times as long as *t*, F_2 and F_3 0.9 and (1.8-)1.9 times as long as *s*, respectively. Distal organs of F_1 and F_2 similar, subcylindrical, somewhat campanulate, 2.1 times as long as greatest diameter and consisting of thin, slightly curved bracts around a sessile ovoid capsule; distal organ of F_3 small and subhemispherical, without surrounding bracts. Globulus *g* 1.6(-1.8) times as long as wide with conical stalk; ≈ 10 bracts present; width of *g* 0.6 of greatest diameter of *t*. Antennae glabrous.

Trunk. Setae of collum segment (Fig. 154) furcate, main branch leaf-shaped, broadest in the middle, with minute pubescence; secondary branch rudimentary, cylindrical; these setae 3.8-5.8(-5.9) times as long as greatest diameter; sublateral seta 1.3(-1.4) times as long as submedian seta; sternite process short, broad, triangular; not cleft distally, anterior part distinctly pubescent; appendages widest proximally; caps flat, wide, glabrous; base segments with minute pubescence.

Setae on tergite I as submedian setae on head, more posteriorly narrower. 4+4 setae on I, 6+6 on II-IV, 4+2 on V and a single posterior row of 4 setae on VI. Submedian setae on VI (Fig. 155) lanceolate, broadest in proximal part, almost glabrous, 0.3 of interdistance. Reticular cuticle pattern very weak.

Bothriotricha. Axes very thin, pubescence very short, T_1, T_2 and T_4 thinnest. Relative lengths: $T_1 = 100$, $T_2 = \approx 100$, $T_3 = (141\text{-})168$, $T_4 = 150(\text{-}153)$, $T_5 = (237\text{-})288$.

Genital papillae (Fig. 156). Conical, twice longer than greatest diameter; distal seta short, thin, 0.2 of length of papilla. Setae on coxa of leg 2 not deviating from other anterior coxal setae.

Legs. Setae on coxa and trochanter of leg 9 (Fig. 157) furcate; primary branch leaf-shaped, with subparallell lateral margins, seta on trochanter 5.4 times as long as greatest width; seta on coxa proportionately broader; secondary branch shorter and thinner than primary branch, somewhat clavate, about 0.7 of length of main branch; distinct oblique pubescence on both branches. Corresponding setae on more anterior legs with rudimentary secondary branches. Tarsus of leg 9 (Fig. 158) slender, tapering,

5.4(-5.7) times as long as greatest diameter. Setae minutely pubescent, proximal seta thin, tapering, pointed; distal seta short, clavate. Proximal seta 0.2 of length of tarsus and (3.6-)4.1 times as long as distal seta. Cuticle of tarsus with faint pubescence.

Pygidium (Fig. 159). *Tergum*. Posterior part of pygidium broadly triangular, margin between *st* with two small submedian lobes separated by a rounded indentation. Relative lengths of setae: $a_1 = 10$, $a_2 = (14\text{-})15$, $a_3 = 23(\text{-}27)$, $st = 2(\text{-}3)$. Setae almost glabrous, a_1 and a_2 lanceolate, broadest in proximal third, somewhat curved inwards; a_3 tapering, strongly curved inwards. *st* short, lanceolate. Distance $a_1 - a_1$ (1.1-)1.2 times as long as a_1, distance $a_1 - a_2$ (2.3-)2.8 times as long as distance $a_2 - a_3$; distance $st - st$ (1.2-)1.3 times as long as distance $a_1 - a_1$.

Sternum. Margin between b_1 with one large median and two small submedian posterior bulges. Lateral margins just outside b_1 with large lobes projecting posteriorly; lobes blunt, with convex sides. Relative lengths of setae ($a_1 = 10$): $b_1 = (26\text{-})29$. Neither b_2 nor b_3 present. b_1 almost straight, tapering, minutely pubescent, (0.8-)0.9 of interdistance.

Anal plate (Figs 159, 160) with somewhat coarse surface, broad base with two short thin almost straight diverging posterolateral spines and a long and broad forked posteromedian appendage, 2.2 times as long as breadth of plate at base.

Genus ***Polypauropus*** Remy, 1932

23. ***Polypauropus afrioccidentalis*** Scheller

Polypauropus afrioccidentalis Scheller, 1995: 41-43, figs 177-188.

Material examined. GABON, Plateau Forestier d'Ipassa, primary forest, in soil, ad. 9(♀), 17.VI.1966 (loc. IPA7/VM4, leg. Barra).

Total number. 1 specimen.

Taxonomic remarks. Compared with the type material from Sierra Leone, the specimen from Gabon has proportionately long pygidial setae a_1 and b_1, somewhat larger setae t_1 and the posterior margin of the small process between the anal plate setae has two glabrous posterior lobes instead of an undulated margin with some pubescence hairs.

General distribution. Previously known only from the locus typicus in Sierra Leone (Scheller, 1995).

REMARKS ON THE WEST AFRICAN PAUROPODA FAUNA

Many species were previously known from tropical West Africa, from Senegal in the north to Angola in the south. Remy has reported the main part by the describing of material from the Ivory Coast (1948b, 1952a, 1953, 1957b), Congo (1954, 1956a, 1962), Angola (1955a), Cameroon (1955b), Senegal (1957c), Gambia (1958a) and Guinea (1959a). The rest of the species have been described by Scheller, who has studied material from Angola (1975) and Sierra Leone (1995). From these papers, and with addition of the species reported here, a list of 111 identified species can be put together, about 15% of the world-fauna known up to now. Most of them, 91species or 82% of the known West African fauna, have not been collected elsewhere, indicating both a high diversity and a high degree of endemism. Those 20 species found outside

tropical West Africa have mostly ranges which include the islands of the Indian Ocean and/or south Asia, but seldom North Africa and never South Africa. A few species have extremely large distribution ranges (*Allopauropus sphaeruliger* Remy, *A. bouini* Remy and *A. proximus* Remy) and may belong to an old subcosmopolitan element, and some of the new species show similarities with species now living far away. For example *Allopauropus singesensis* sp. n. has relations to species in Paraguay and Thailand, *A. stenygros* sp. n. to species in the Oriental region, *A. lambdoides* sp. n. to species not only in tropical Africa but also in Brazil, *Cauvetauropus pistillifer* sp. n. seems to be related to congeners in Sri Lanka and *Hemipauropus elongatus* sp. n. not only to African species but also to a species on Mauritius.

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